The Library of Congress
General Serial Record
Received
NOV -6 1942
Copy 2

PIT AND QUARRY

OCTOBER, 1942

FOR 25 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

LUDLOW-SAYLOR
CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS
for super-severe service

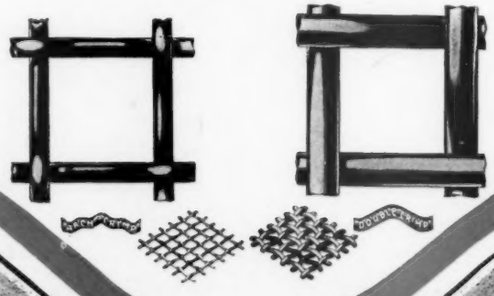
SUPER-HARD, SUPER-TOUGH, SUPER-STRONG

CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS

withstand abrasion longer—

endure vibration better—

resist fatigue to the utmost



The background at top of page shows the "Perfect" Double-Crimp Weave.

The small cuts in the center panel compare Arch-Crimp Weave and Double-Crimp Weave.

The border at foot of page shows "Perfect" Double-Crimp Steel Wire Cloth which has been hot-dip galvanized after weaving.

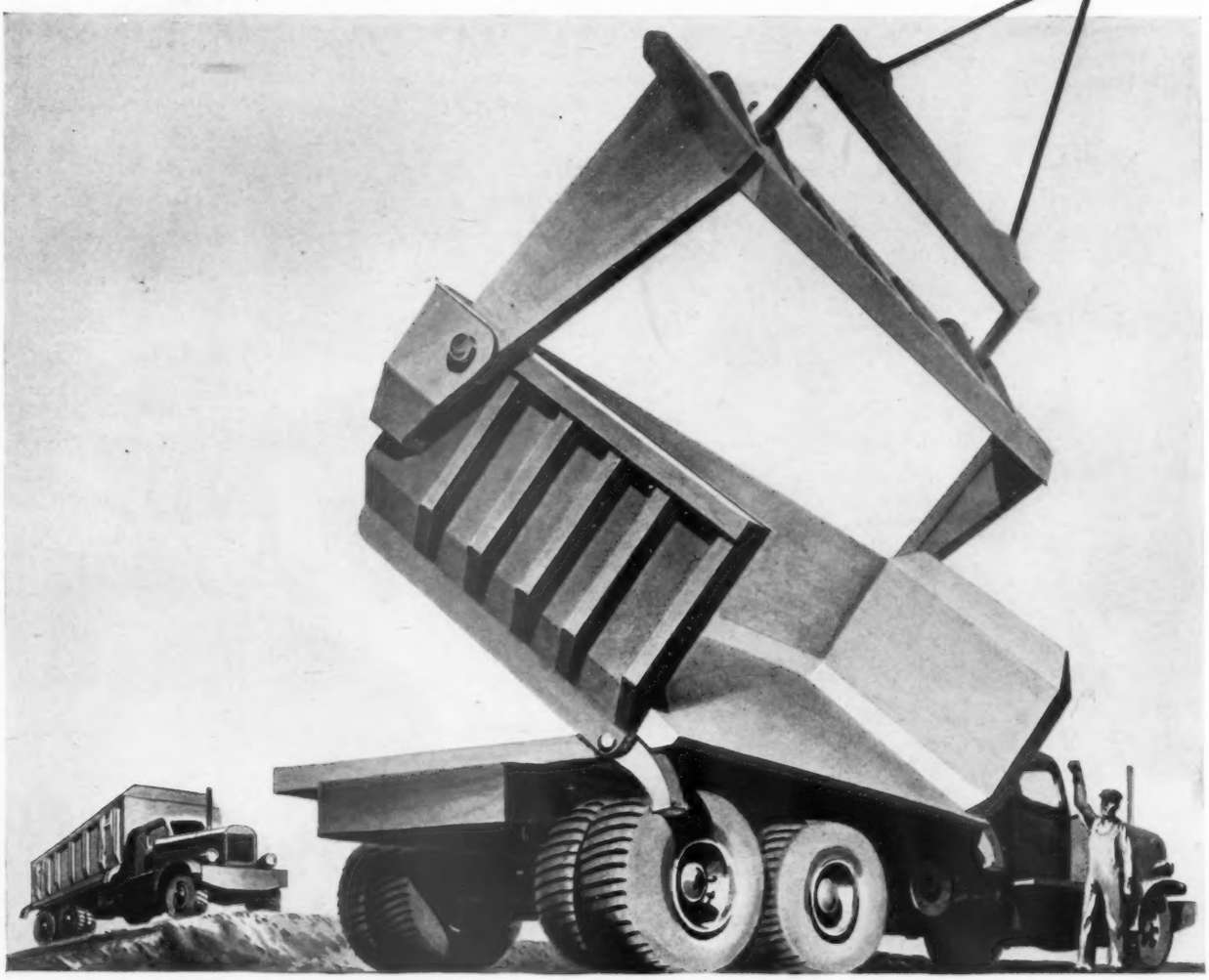
Samples on request.

The LUDLOW-SAYLOR WIRE COMPANY
SAINT LOUIS

NOV -2 194 ©C1B 562827

COMING UP!

FOR YOUR CONSIDERATION



Make a note of this: EASTON has designed a new large capacity back-mounted body for open pit mining of iron ore. Six of these big side-dump Diesel-powered units will soon start hauling 30-ton loads uphill against a 10 percent grade.

An interesting feature is the dumping arrangement which our artist has visualized above. An EASTON overhead hoist is used. It works automatically by remote control. Two balanced hooks engage lift-bars on the side door. The door is raised until it is in a straight line with the hoisting cable. Then it becomes part of the bail for dumping and the body is raised to discharge position. While heavy chunks of ore might injure the operating mechanism of an automatic door, the simple arrangement used here lifts the door high out of harm's way and high enough to pass the largest piece of ore that might be loaded into the 16-yard body by the 4-yard shovel.

When the body is dumped, EASTON patented stabilizer feet, or outriggers, rest on the crusher-hopper wall. They absorb the shock and protect the truck chassis and springs from injury as the 30-ton load slides into the hopper.

Someday, perhaps sooner than you think, haulage is coming up for consideration at your operation. As demands increase, haulage routes lengthen, and old equipment completely outlives its usefulness, you'll want *more tonnage, faster, at lower cost.* That's why it will pay you, now, to consult EASTON and let our engineers make a free survey of your requirements. If you need, right now, new equipment which is necessary to *your* war effort, let EASTON help you to cut through Washington red tape and get it. Write to: Engineering Counsel, Easton Car & Construction Co., Easton, Pa. B-1000

EASTON

INDUSTRIAL CARS
TRUCK BODIES · TRAILERS
ELECTRIC LIFT TRUCKS

PIT AND QUARRY, October, 1942. Vol. 35, No. 4. Published monthly by the Complete Service Publishing Company, 528 South Clark Street, Chicago, Ill. Subscription price $1 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

Finer CRUSHING Greater OUTPUT

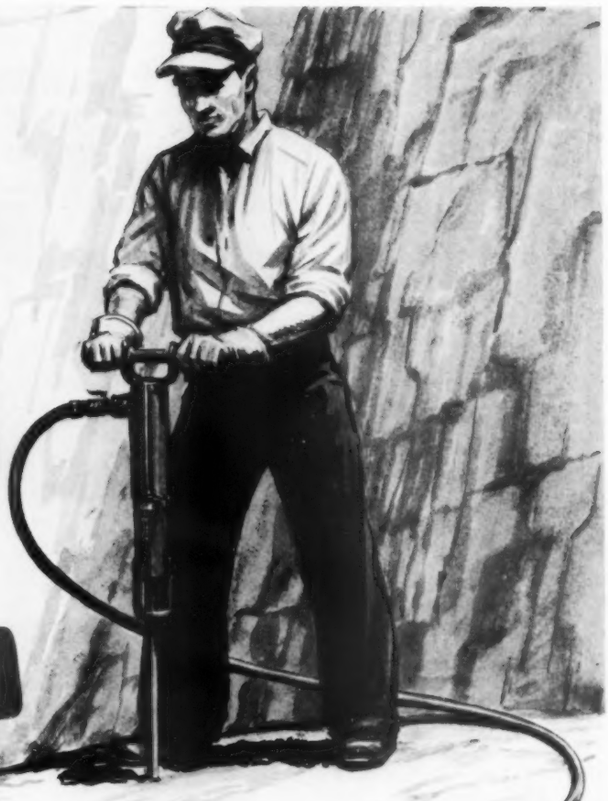
Many plants engaged in the production of crushed stone, gravel, slag and various industrial minerals are handicapped due to the inability to produce the more finely crushed sizes in sufficient quantity to meet today's emergency demands. Where such conditions prevail, the answer will be found in the installation of a Symons Cone, the Crusher now serving most modern crushing plants engaged in fine crushing operations.

If you require greater output of more finely crushed materials, follow the example of the leaders in the industry who are users of Symons Cone Crushers.

We are proud to serve our country in the production of war materials, and to have been awarded the Navy "E" for EXCELLENCE.

NORDBERG MFG. CO.
MILWAUKEE WISCONSIN
NEW YORK · LOS ANGELES · LONDON · TORONTO

IT'S GOOD BUSINESS TO DO BUSINESS WITH THERMOID



Quarrymen find Thermoid a *preferred,* dependable source of supply for rubber and friction products. The Thermoid line is *complete*—it includes every type of wrapped and molded Hose, Transmission and Conveyor Belting, a full range of V-Belts and Drives, Brake Linings for all equipment, and Packings.

Thermoid provides—through its own field staff, augmented by alert, informed distributors—an advisory engineering service. This personalized attention—by distributors and by trained Thermoid representatives, has resulted in lowered operating costs, greater efficiency, and fewer plant interruptions for users of Thermoid Products.

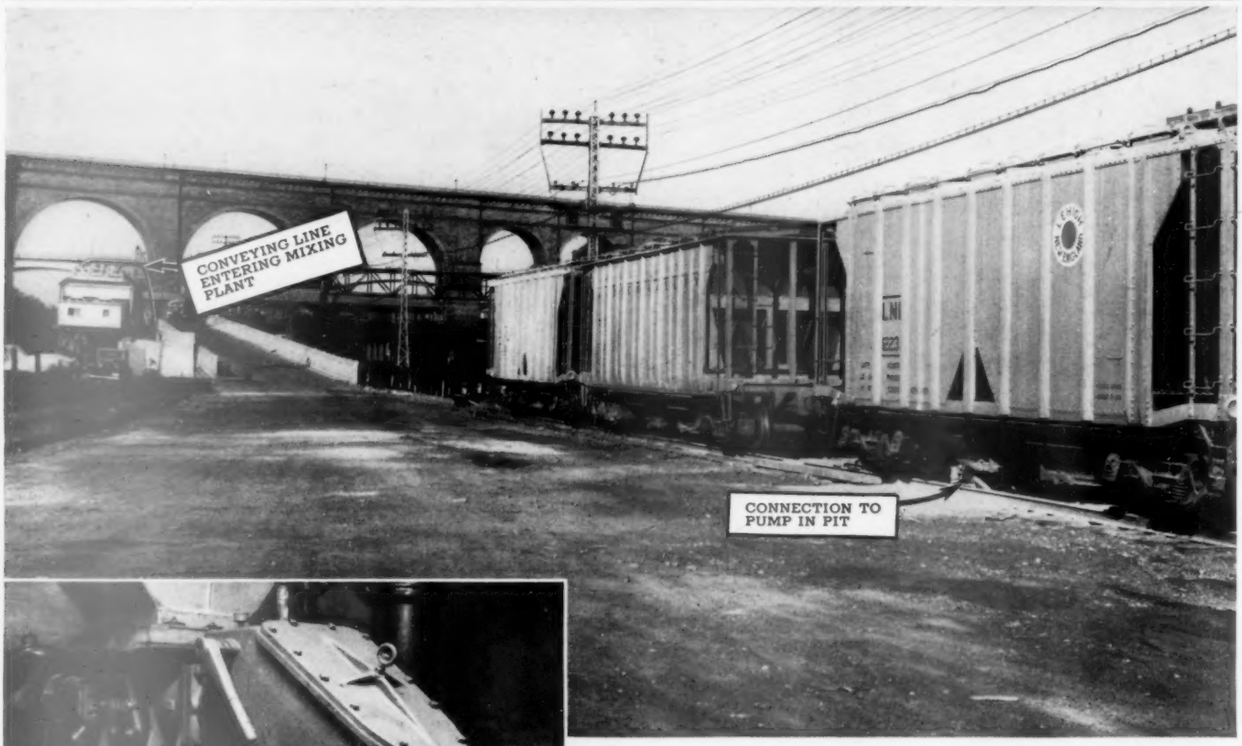
TO HELP CONSERVE rubber products now in use, Thermoid engineers have prepared a series of bulletins containing specific suggestions on installation and maintenance. Free on request.

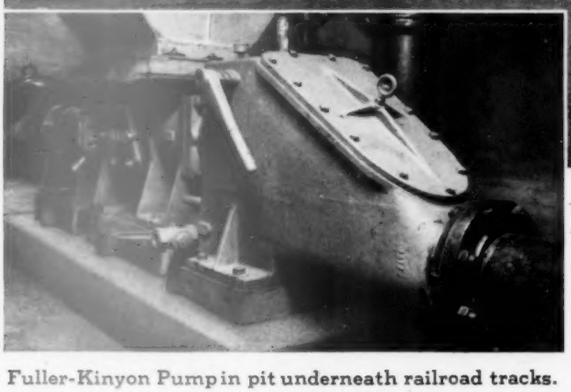
Thermoid
INDUSTRIAL RUBBER PRODUCTS
BUILT FOR THE JOB
QUALITY VALUE SERVICE

Thermoid Rubber

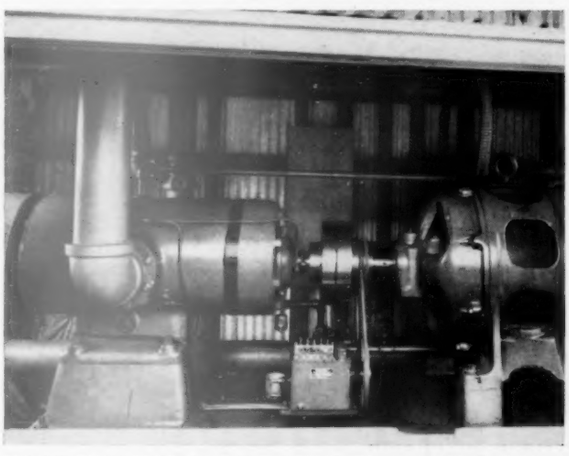
DIVISION OF THERMOID CO. • TRENTON • NEW JERSEY

James Norton uses Fuller Equipment





Fuller-Kinyon Pump in pit underneath railroad tracks.



Fuller Rotary Single-Stage Compressor which furnishes air for the Fuller-Kinyon System.

For unloading and conveying bulk Portland cement

James A. Norton, Inc., New York City, takes full advantage of Fuller equipment for unloading and conveying bulk Portland cement. All cement is received in hopper-bottom cars and "spotted" directly over a Fuller-Kinyon Pump installed in a pit underneath the railroad tracks. From this point cement is pumped through a pipe line to the mixing plant, a distance of approximately 700 feet, shown in the upper left-hand corner of photograph above.

Air for transporting the cement is furnished by a Fuller Rotary Single-stage Compressor.

Convey the Fuller-Kinyon way . . . power, installation, maintenance and operating costs for the average system are lower than that of any other. Minimum of supervision. Layouts are extremely simple, pipe lines can be hung overhead or buried under ground. Material can be conveyed and distributed to any number of bins to any remote part of the plant.

P-55

FULLER COMPANY

CATASAUQUA — PENNSYLVANIA

CHICAGO—Marquette Bldg. SAN FRANCISCO—Chancery Bldg.

"Saves us $100 per month IN SHUTDOWN TIME!"

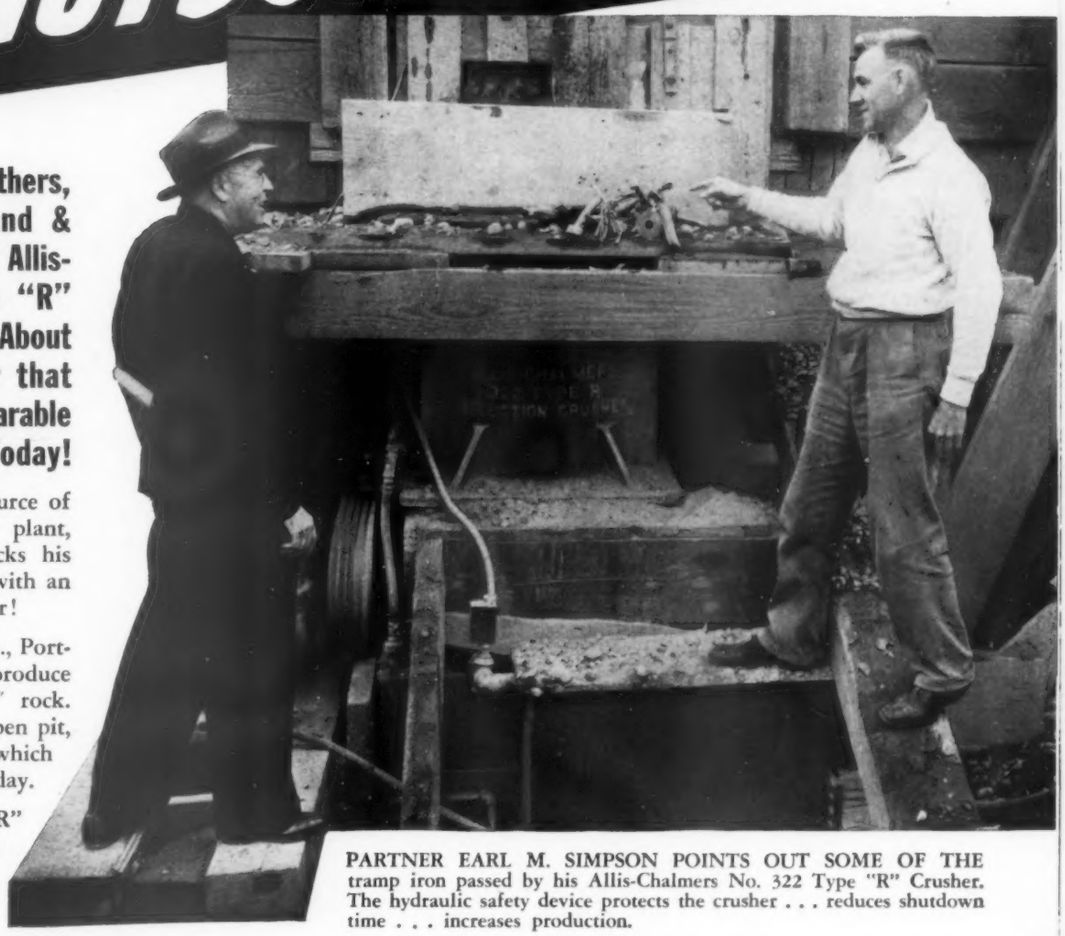
That's What the Simpson Brothers, Owners of Rose City Sand & Gravel Co., Say About Their Allis-Chalmers No. 322 Type "R" Crusher! Read All the Facts About This Remarkable Crusher that Costs Less than Any Comparable Machine on the Market Today!

Tramp iron? If that's been a source of interrupted production in your plant, here's the way one operator licks his problem of shutdown time . . . with an Allis-Chalmers Type "R" Crusher!

At Rose City Sand & Gravel Co., Portland, Ore., the Simpson brothers produce 25 yards per hour of minus ½" rock. The gravel comes from a large open pit, contains considerable tramp iron, which gets into the crusher several times a day.

When this happens, the Type "R" hydraulic relief device opens, the head drops, and the tramp iron passes into the discharge. Then a turn of the hand crank-operated "Speed-Set" Control resets the crusher head in a few seconds.

Contrast this with what happens when tramp iron gets into an ordinary crusher! At worst, the shaft may break . . . at best, the iron is flattened out with serious strain on the machine. Often the crusher is stalled making it necessary to pick out the rock by hand and possibly burn out the iron.



PARTNER EARL M. SIMPSON POINTS OUT SOME OF THE tramp iron passed by his Allis-Chalmers No. 322 Type "R" Crusher. The hydraulic safety device protects the crusher . . . reduces shutdown time . . . increases production.

That's why partner John M. Simpson writes, "This safety device alone saves us at least $100.00 per month in shutdown time and possible repairs. Our Type "R" produces more cube rock and less dust than the ordinary reduction crusher . . . and we now make considerably more Oregon and Washington state specification oil rock."

This is just one example of how Allis-Chalmers Cooperative Engineering can help operators increase their production. If a problem comes up in your plant, let us place our experience and facilities as the world's largest manufacturer of rock and ore reduction machinery at your disposal . . . help you get the right equipment for your job. Allis-Chalmers, Milwaukee, Wisconsin. A 1506

Get all-out production with

ALLIS-CHALMERS

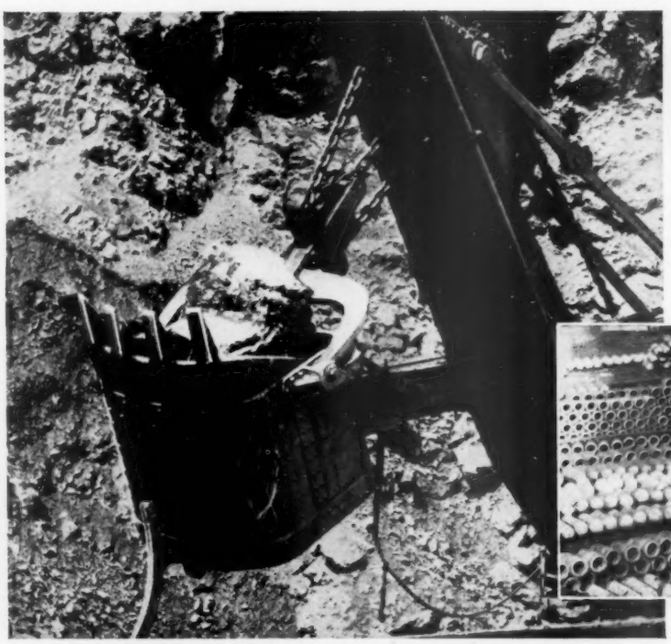
COOPERATIVE ENGINEERING

1742

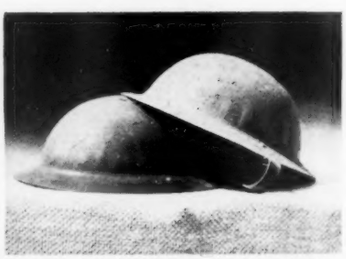
200th Anniversary

Mold used to cast cannon balls for the Continental Army. 1775-1781

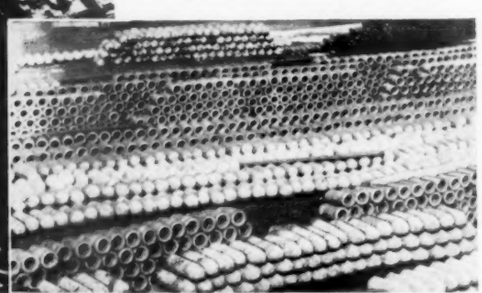
Cast steel projectiles made for U.S. Navy during Spanish-American War.



The Panama Canal was dug to a great extent by power shovels fitted with "Panama" patented Two-Part Teeth, of Tisco Manganese Steel made at our High Bridge Plant. This photograph shows a shovel in operation during construction of the Canal.



U. S. Army helmets made of Tisco Manganese Steel during World War I.



9.2" shell forgings made for World War I.

1742 TW 1942

TAYLOR • WHARTON

1942

THE Nº 6

Pennsylvania Journal,

OR

Weekly Advertiser.

TUESDAY January 11. 1742-3.

This Day arrived here Capt. *Jenning's* from *London*, by whom we have the following Advices, viz.

NUREMBURGH, October 4 O. S.

According to the last Advices from the Army of Marshal Maillebois in Bohemia, which are of the 7th, it is evident that he will be obliged to retire. His Design was to have join'd the Imperial Troops, and thus to cut off the Communication between the Prince of Lorrain and the Queen of Hungary, and by that Opportunity offer'd, to have given Battle to the Prince before he could be join'd by the Troops under the Command of Count Konigseck, which are now on their March towards Bohemia, in order to make a Diversion, or join General Batthiani.

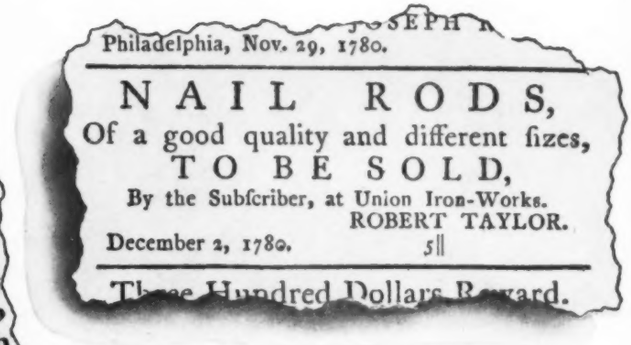
Advices add, that the Feld-Marshal Kevenhuller encamp'd to-day at Ens, and that Baron Trenck, who is advancing towards Schwanenstadt, at the Head of 6 or 7000 Men, has orders to cause Ens to this City.

Hague, Oct. 5 O. S. *Things are in a very uncertain Situation. We hear that the Queen of Hungary must soon be explained. I am told that she is in her main Body of the Army, and there is within the Bound of the Mammoth several Iron Works and high to it a Meeting House. Also two other Tracts of Land containing 500 Acres in Bethlehem, a small distance from the Furnace that William Allen is building. Whoever inclines to purchase any part or the whole, may treat with Isaac Pearson in Burlington and know the Terms.*

Advices from Vienna of the 14th ult. that 44 Dragoons of Preysing's Regiment, Prisoners; the Commissaries at Neuschatz, and near 2000 Head of Cattle, that has been brought hither from all the neighbouring Villages. An hundred Hussars and Dragoons, and 350 Pandours, formed the Rear Guard. The 7th Instant and the Day following, 4000 Imperial Troops arrived in this City; the poor Inhabitants, notwithstanding the extreme Misery to which they are reduced, went out to meet them on the Road, and cheerfully offered them part of the little Victuals they had.

Genoa, Sept. 8. His Sardinian Majesty has intirely recover'd Savoy. his Troops having taken Possession

First newspaper reference to this Company. In the above issue of Tuesday, January 11, 1742-3, of The Pennsylvania Journal, note the mention of "the furnace that William Allen is building."



Philadelphia, Nov. 29, 1780.

NAIL RODS,

Of a good quality and different sizes,

TO BE SOLD,

By the Subscriber, at Union Iron-Works.

ROBERT TAYLOR.

December 2, 1780. 5||

Three Hundred Dollars Reward.

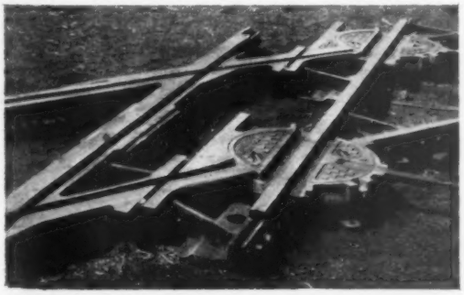
First advertisement using the Taylor name. The above clipping is from the New Jersey Gazette, December 6, 1780.

COINCIDENT WITH THE 50th ANNIVERSARY OF HADFIELDS MANGANESE STEEL IN AMERICA, FIRST PRODUCED AT HIGH BRIDGE, NEW JERSEY, ON OCTOBER 29, 1892

155 M.M. shells made for U.S. Army for present World War.

Photograph at left shows a Tisco Patented Rivetless Bucket made for placer dredges.

Crusher with wearing parts of Tisco Manganese Steel.



Special trackwork for railroads and Army and Navy installations.

Tisco Manganese Steel Tank treads for World War I and present World War.

Seamless high pressure gas cylinders for all compressed and liquefied gases.

IRON AND STEEL COMPANY

While we're at it—let's save the NEW material too!

IN our enthusiasm for scrap collecting and salvage campaigns, let's not lose sight of the fact that conserving *new* material is always equally important—perhaps more important just now.

It's not surprising that in this land of plenty people sometimes fall into wasteful habits. There are plenty of instances of this, and you can ask for no better example than the habit of using heavier pipe than a job actually requires.

The piping requirement may involve merely low pressure water, air, gas or exhaust steam. But too often the attitude is: "It's a run-of-mine job, so just order Standard Thickness Pipe".

When you jump at that conclusion, you often waste more steel than a big scrap pile could replace. For it has been clearly demonstrated that Taylor Spiral Pipe will handle such requirements with strength and service life to spare—handle them with a big saving of steel and at an installed cost often no more than half that of the heavy pipe it so well replaces.

Switching to Taylor Spiral for services like those listed opposite is made easy by the complete range of sizes and wide variety of fittings. Thicknesses range from 18 to 6 gauge; sizes from 4" to 42"; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies, are produced by Taylor Forge, assuring a complete service and undivided responsibility. Consider Taylor Spiral for that next job.

Change to TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines.
- Low Pressure Steam and Air Lines.
- Steam and Diesel Exhaust Lines.
- Vacuum and Suction Lines.
- Blower Piping.
- Sand and Gravel Lines.
- Industrial Gas Lines.
- Oil and Gas Gathering Lines.
- Swing Pipe.
- Spray Pond Piping.
- Hydraulic Mining.
- Dredge Lines.

★ ★ ★

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485
New York Office: 50 Church Street
Philadelphia Office: Broad Street Station Building

TAYLOR *Spiral* PIPE

Attack! Attack! All guns blazing! . . . He knows his business.

In every field of human endeavor it's the "know-how" that counts.

For 37 years Raybestos has pioneered in the production and development of friction materials for every purpose . . . and now, also, for America's armed forces.

When you specify Raybestos you get friction materials that are *correct* and *dependable* because there is a Raybestos brake lining and friction *specially engineered* to meet the *exact* requirements of every make and model of machine that you operate.

Raybestos knows its business. And fastest deliveries are assured through the Raybestos net-work of local suppliers.

See your local Raybestos distributor or wire us.

THE RAYBESTOS DIVISION *of Raybestos-Manhattan, Inc.*, BRIDGEPORT, CONN.

RAYBESTOS IS AMERICA'S BIGGEST SELLING BRAKE LINING

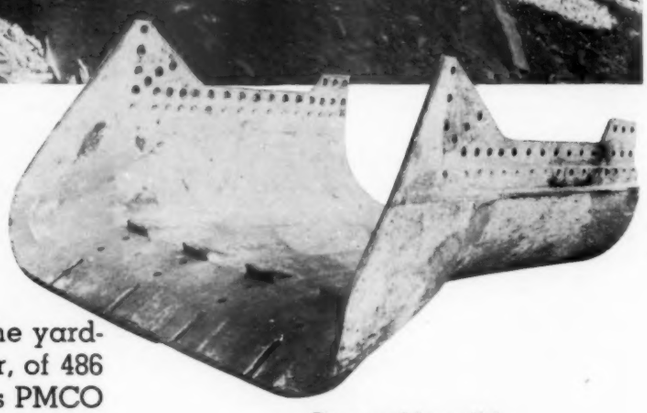
Raybestos INDUSTRIAL FRICTION MATERIALS

FOR SHOVELS • CRANES • HOISTS • TRACTORS & EARTH MOVERS

27.5% increased yardage with PMCO WELDED DIPPER

THIS 15½-yd. PMCO welded dipper replaced a 12-yd. solid cast dipper of practically same total loaded dipper weight, and added 27.5% to daily output of shovel in a well known middle west coal mine. The yardage per hour, with the solid cast dipper, of 486 yds. was increased to 620 yds. with this PMCO welded dipped without additional power or structural change in the shovel.

Your shovel can have increased yardage with the modern designed PMCO Welded Dipper.



Renewable solid manganese steel front

can be quickly riveted to the body sections of PMCO dippers. We are equipped to give fast service on repair parts for dippers now operating on essential civilian or military projects.

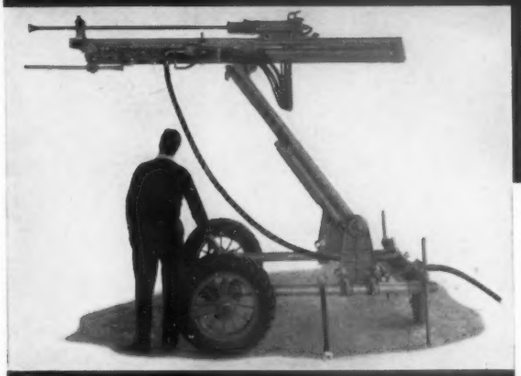
We operate the largest and most complete manganese steel foundry in the United States

PETTIBONE MULLIKEN CORPORATION

Established 1880

4710 West Division Street, Chicago, Illinois

ALL THE Same DRILL!



DR30 drills a flat hole 8 feet above ground level.

Set for drilling a low, flat hole.

Set for drilling a high hole, angling upward.

THE varied positions taken by the DR30 machine illustrated here are only a very small part of the settings possible with this latest Cleveland wagon drill. The DR30 has the double screw U-bar jack — the recoil device (it increases cutting speed) — the improved centralizer — the forward leg point, to steady the drill — all the important features of the older designs, with the improvements that make the Cleveland DR30 the most popular wagon drill ever built. • Ask for new Bulletin 132 — just off the press. It tells the whole story.

BRANCH OFFICES

Birmingham, Ala.	Dallas, Texas	Philadelphia, Pa.
Berkeley, Calif.	Detroit, Mich.	Pittsburgh, Pa.
Boston, Mass.	El Paso, Texas	Richmond, Va.
Buffalo, N. Y.	Ironwood, Mich.	Salt Lake City, Utah
Butte, Mont.	Los Angeles, Calif.	St. Louis, Mo.
Chicago, Ill.	Milwaukee, Wis.	Victor, Colo.
Cincinnati, Ohio	New York, N. Y.	Wallace, Idaho
		Lexington, Ky.

CANADIAN DISTRIBUTORS

Purves E. Ritchie & Son, Ltd., 658 Hornby St., Vancouver, B. C.
Whitehall Machine & Tools, Ltd., Galt, Ontario

THE CLEVELAND ROCK DRILL CO.
3781 E. 77th STREET CLEVELAND, OHIO

★ ★

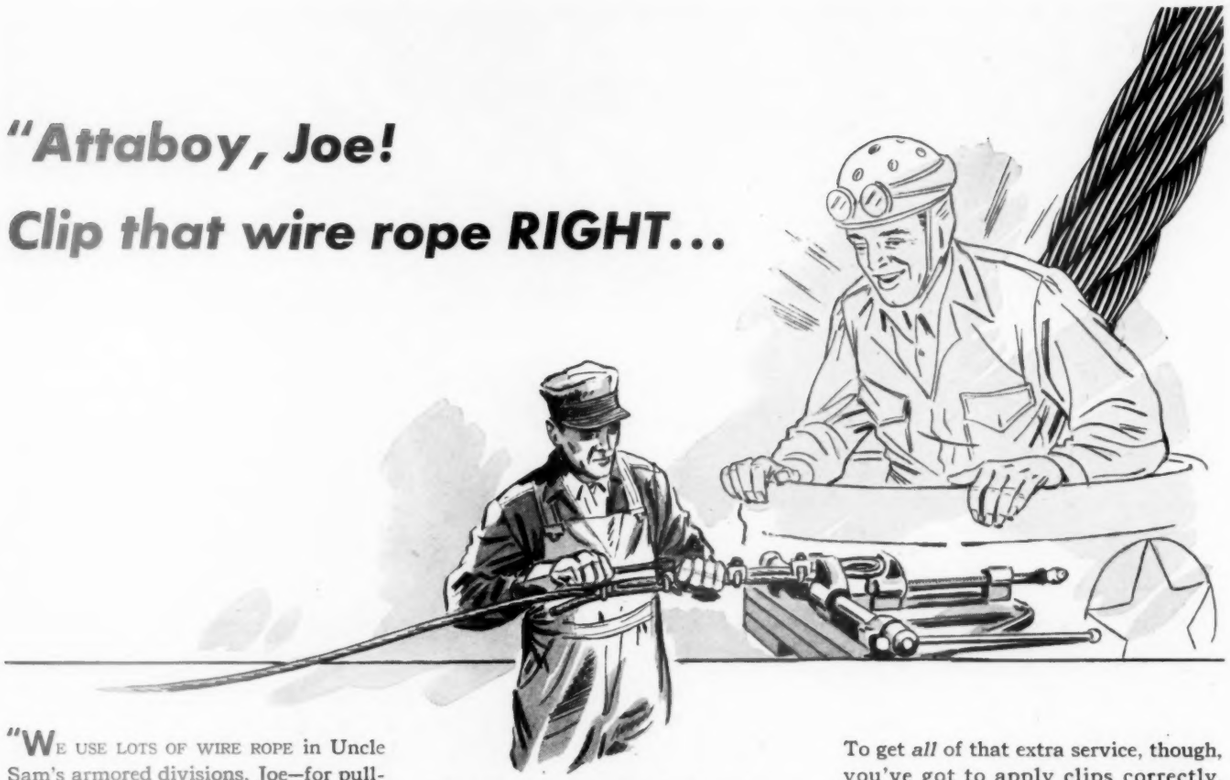
Cleveland DR30 has a "slabback" mounted drifter, double screw U-bar.

Note how the wheels can be swivelled.

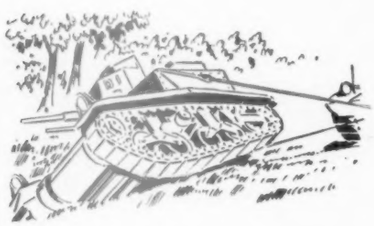
Another position of the wheels and drill.

"Attaboy, Joe!

Clip that wire rope RIGHT...



"WE USE LOTS OF WIRE ROPE in Uncle Sam's armored divisions, Joe—for pulling out of tight spots, for towing disabled tanks and trucks, for handling heavy replacement parts . . . And we use it right and *fasten* it right, because we know men's lives in battle may depend on its being just as strong as it's supposed to be!"



Keeping wire rope "just as strong as it's supposed to be" is important *wherever* wire rope is used—on fighting front or production front! One factor in rope strength is correct fastening. *Properly used*, clips make a convenient and satisfactory fastening, developing 75 to 90 per cent of the rope strength.

When we build "Blue Center" Steel Wire Rope here at Roebling, we put in all the *extra* value of 100 years of wire-rope engineering. But even "Blue Center" Steel Wire Rope can't give extra service unless *enough* clips are used in fastening. The table below gives data for clipping "Blue Center" Wire Rope.

NUMBER OF CLIPS REQUIRED FOR "BLUE CENTER" STEEL WIRE ROPES

Rope Diameter	Number of Clips	Spacing of Clips	Length of Wrench
½" to ⅝"	4	3½" to 4¼"	12"
¾" to ⅞"	5	5" to 5¾"	18"
1" to 1⅛"	6	6½" to 7¼"	24"
1¼" to 1⅜"	7	8" to 8¾"	24"
1½"	8	9½"	24"

To get *all* of that extra service, though, you've got to apply clips correctly. Always use a standard wire-rope thimble. Put the clip U bolts on the dead end of the rope. Tighten bolts securely, but *do not crush rope!* Retighten all clips after an hour's full

running time and also at all regular inspections. By following these rules for proper clipping, you'll be helping to keep rope on the job for Victory.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY
Branches and Warehouses in Principal Cities

★ PROMPT SERVICE
★ on essential orders
★ from warehouse
★ stocks or mill

ROEBLING
"Blue Center"
STEEL WIRE ROPE
PREFORMED OR NON-PREFORMED

IRON AND STEEL ARE DESPERATELY NEEDED!
Throw Your Scrap into the FIGHT!

So That Free Men May Rule the Skies

"Production and more production" is the battle cry of a free people. They know complete security rests with production supremacy — ability to out-produce the Axis.

Marion shovels are playing a vital part in keeping the Nation's assembly lines working at top speed. Their jobs are in the quarries and mines, digging critical raw materials and keeping them moving to the many construction and production fronts in an endless stream, and the building of projects essential to the war effort. This they are doing on a twenty-four hour schedule.

THE MARION STEAM SHOVEL COMPANY
MARION, OHIO, U. S. A.

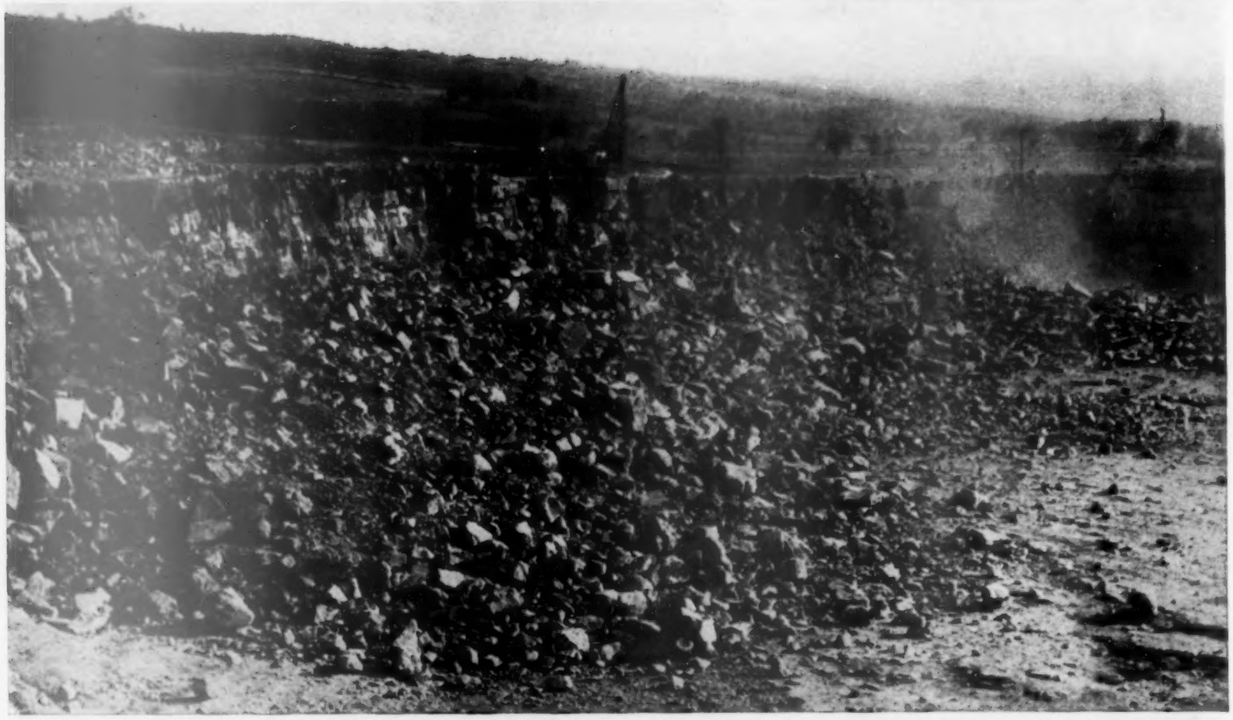
Offices in all principal cities
Serving industry since 1884

MARION

SHOVELS • DRAGLINES • CLAMSHELLS
CRANES • PULL-SHOVELS • WALKERS

Gasoline — Diesel — Electric — ¾ cubic yard to 35 cubic yards

A Good Shot In Your Quarry



Is a Shot Against the Axis

Atlas "Better Blasting" Speeds Production . . . Saves Equipment!

Make every shot count with the right use of the right Atlas explosive.

Wartime production puts ever-growing demands on equipment. Inevitably, repair costs rise. But—these costs can be controlled and held to a minimum.

The key is "better blasting"—the right explosive used in the right way.

Proper and uniform shattering of rock permits a full dipper load. Poorly shattered material means only partly filled dippers, with lower returns and higher maintenance costs.

Call on the Atlas representative to help you find the best solution of your blasting problems.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. · Offices in principal cities · Cable Address—Atpowco

(All weighed-in on the platform scale, another Mack-load of coal gets the go-ahead and rolls away. Sketched from life, near Scranton, by Peter Helck.)

Well-known American, at work!

THE SAYING "Built like a Mack Truck" is something more than a slang phrase. It is an acute observation on the difference between a Mack . . . and just a truck! It worked into the language because of the way a Mack works into a job. The first Mack, built in 1900, served 17 years. No one knows . . . *yet* . . . what records today's Macks will make. But you can put it down as sure that the first Mack, today's Mack, tomorrow's Mack . . . all set out to be the *best* trucks in the world when made!

Mack Trucks, Inc., New York, N. Y. Factories at Allentown, Pa.; New Brunswick, N. J.; Plainfield, N. J.; Factory branches and dealers in all principal cities for service and parts.

Mack

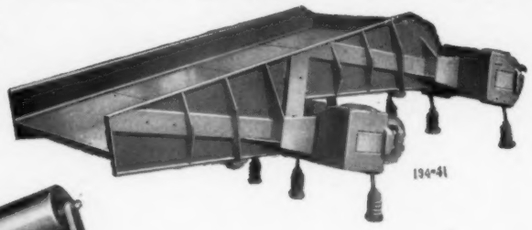
TRUCKS
FOR EVERY PURPOSE
ONE TON TO FORTY-FIVE TONS
BUY U. S. WAR BONDS

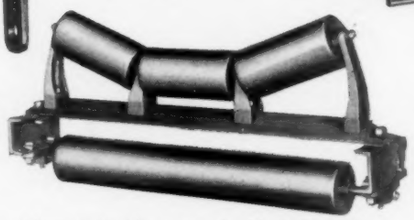
IF YOU'VE GOT A MACK, YOU'RE LUCKY . . . IF YOU PLAN TO GET ONE, YOU'RE WISE!

CHECK THESE SERVICE FACTORS

A type and size chain for every conveying, elevating and power transmission need. Peerless, detachable and steel knuckle are shown.

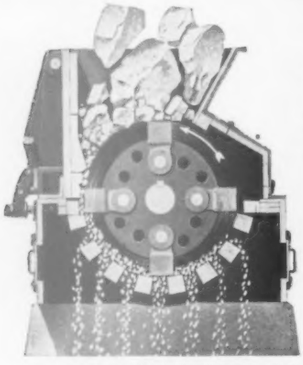
In handling quarry materials, of course you want economy, efficiency, and maximum freedom from costly and annoying maintenance problems. You get these in Jeffrey products, designed and manufactured for handling stone, gravel, sand, etc.



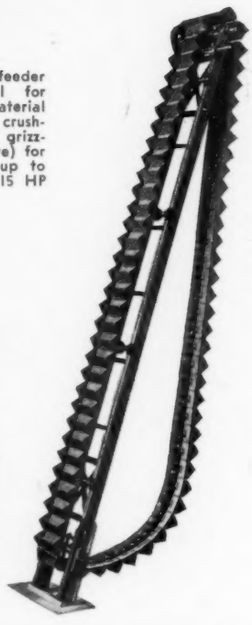


Jeffrey belt idlers are furnished in both troughing and flat belt types in widths from 14" to 60". Heavy steel rolls, accurately balanced and equipped with Timken tapered roller bearings.

Jeffrey-Traylor electric vibrating feeder (patented) J-T feeders ideal for handling large run-of-quarry material from surge hoppers to primary crushers, hammermills, trommels or grizzlies. Special large feeder (above) for handling 48" lumps at rates up to 2000 T.P.H. with maximum of 15 HP required.



Jeffrey-Traylor grizzly feeder (right) for by-passing fines ahead of primary and secondary crushers, screens, picking belts. Also electric vibrating screens and feeders (patented). The Jeffrey Miracle hammer crusher (left) is used for reducing large pieces of limestone, shale, slag and cement rock. Steam shovel size to 1", 2", 3" or 4" and under in one operation.



THE JEFFREY MANUFACTURING COMPANY

917-99 North Fourth Street — Columbus, Ohio

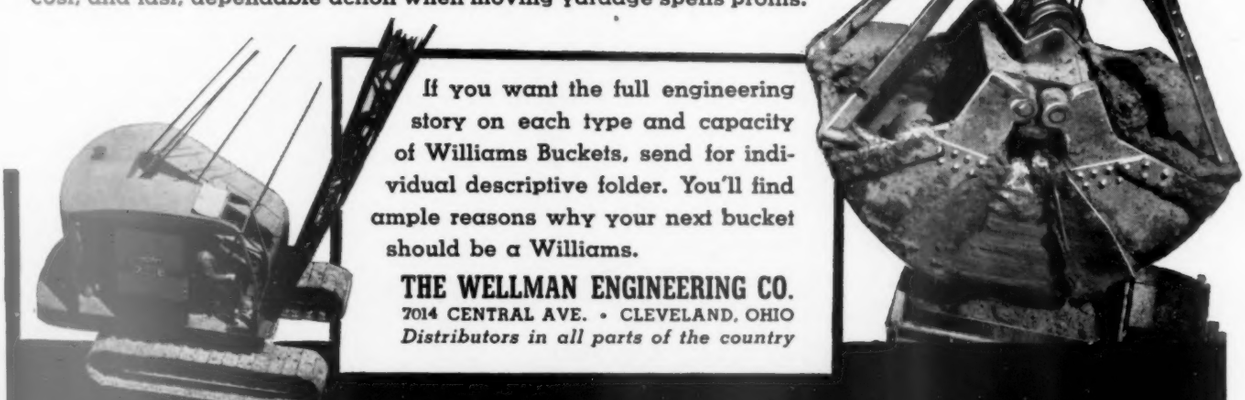
Baltimore	Chicago	Detroit	Milwaukee	St. Louis
Birmingham	Cincinnati	Harlan	New York	Scranton
Boston	Cleveland	Houston	Philadelphia	Salt Lake City
Buffalo	Denver	Huntington	Pittsburgh	

Operating conditions, capacity or class of material make no difference—there is a Jeffrey bucket elevator to do the job. A complete line of standardized units. An inclined continuous elevator is shown right.

WELDED FOR GREATER STRENGTH AND SPEED

ROLLED STEEL CONSTRUCTION

An operator really makes time with a Williams Bucket on the end of his boom. A few grabs and another full loaded truck is on its way. Williams Buckets have tremendous closing power—they dig deep—bite clean and come up with heaping loads. Williams Buckets are "built to last and move dirt fast". And that's exactly what a contractor wants—long service at little maintenance cost, and fast, dependable action when moving yardage spells profits.



If you want the full engineering story on each type and capacity of Williams Buckets, send for individual descriptive folder. You'll find ample reasons why your next bucket should be a Williams.

THE WELLMAN ENGINEERING CO.
7014 CENTRAL AVE. • CLEVELAND, OHIO
Distributors in all parts of the country

WILLIAMS *Buckets*
built by WELLMAN

POSTER REPRODUCTIONS AVAILABLE ON REQUEST. SEE COUPON.

COPYRIGHT 1942, WICKWIRE SPENCER STEEL COMPANY

YOU CAN HELP DO THIS JOB

Your country needs all possible steel for guns, tanks, ships and shells. All the *wire rope* that can be produced is needed for military and naval uses—and to speed war production in scores of industries. You can serve your country by taking care of *your* wire rope, so that replacement is postponed as long as possible.

FREE BOOK TELLS HOW

It illustrates and describes more than forty ways to *save money* on wire rope. The big pictures of right and wrong ways make it easy to spot sources of too rapid wear—and *correct* them.

Many thousands of wire rope users throughout the world use this handy book as their guide to longer wire rope life. Now, with urgent war needs for steel and wire rope, it is doubly important that every wire rope user have a copy.

If you *must* have new wire rope to maintain uninterrupted war production, help us to help you by anticipating your needs as far in advance as possible, within priority regulations.

WICKWIRE

WICKWIRE SPENCER STEEL COMPANY

WSS

WISSCO PRODUCTS

WICKWIRE ROPE

Sales Offices and Warehouses: Worcester, New York, Chicago, Buffalo, San Francisco, Los Angeles, Tulsa, Chattanooga, Houston, Abilene, Texas, Seattle. Export Sales Department: New York City.

MAIL THIS COUPON

Wickwire Spencer Steel Company
500 Fifth Avenue, New York, N. Y.

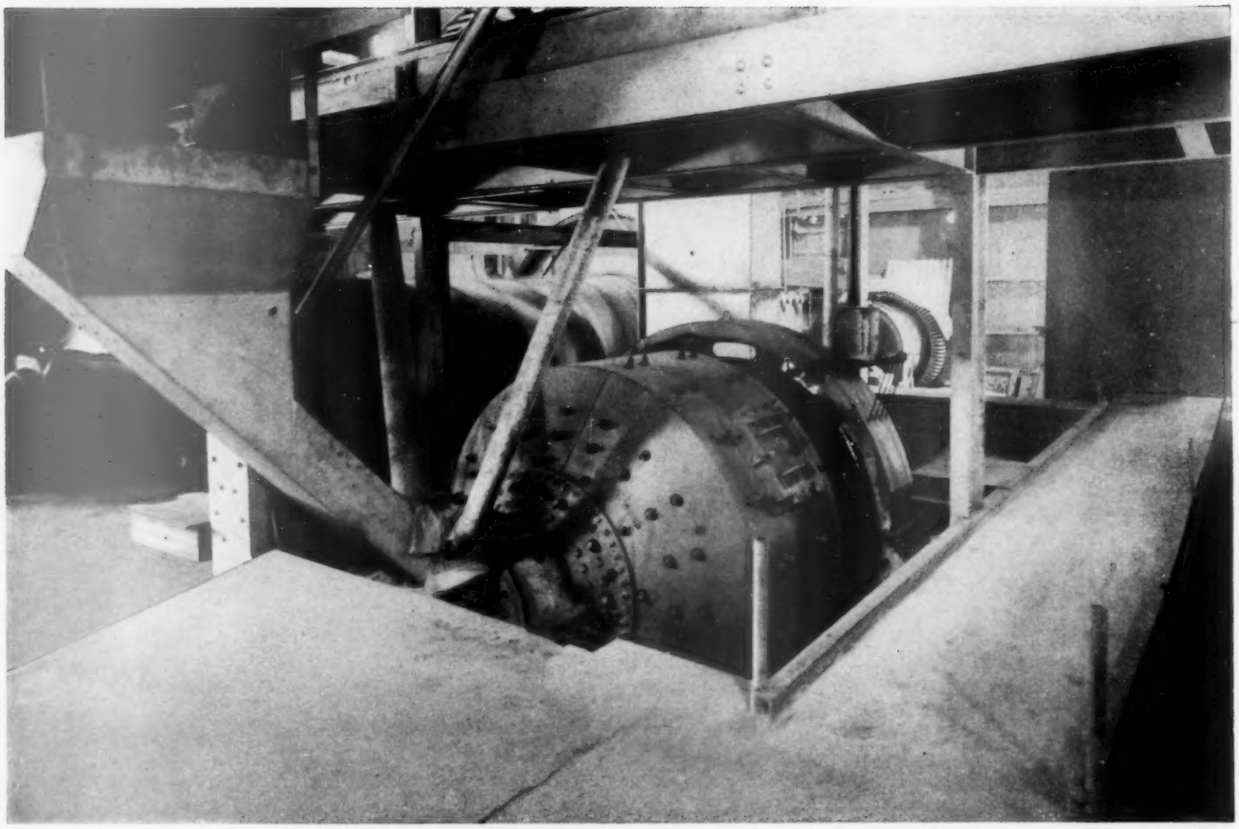
☐ Send free copy of the book, "Know Your Ropes."

☐ Send.....free posters, 21" wide, of illustration at top of this page. No advertising appears, merely prize-winning title, "I Pull with Uncle Sam."

Name.....

Company.....

Address.....



Conical Mill Replaces Tube Mill At Medusa Cement

Excerpt of an article in Pit and Quarry Magazine, August, 1942, page 43:—

> "A third tube mill was converted into a preliminary grinding ball-mill and operated in closed circuit with Tyler-Hummer screens. This ball-mill has been replaced by two 48-inch by 9-foot diameter Hardinge Conical Mills which are operated in closed circuit with the screens."

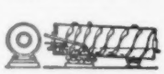
Both types of mills use balls as the grinding media, but it is the shape of the Conical Mill that puts those same balls to work so much more efficiently that actual replacement by the Conical Mill was warranted and is proving to be a most profitable venture.

HARDINGE

COMPANY, INCORPORATED - YORK, PENNSYLVANIA

122 East 42nd Street, New York, N. Y. | 205 West Wacker Drive, Chicago, Illinois | 501 Howard Street, San Francisco, California | 200 Bay St., Toronto, Ontario, Canada

CONICAL MILLS


COUNTER CURRENT CLASSIFIERS

THICKENERS CLARIFIERS

RUGGLES-COLES DRYERS

CONSTANT WEIGHT FEEDERS

TUBE ROD AND BATCH MILLS

High Speed TRAIL-DUMP HAULING OVER ROUGH GRADE Saves Time

OSCILLATING FRONT AXLE ..UNIVERSAL ACTION HITCH

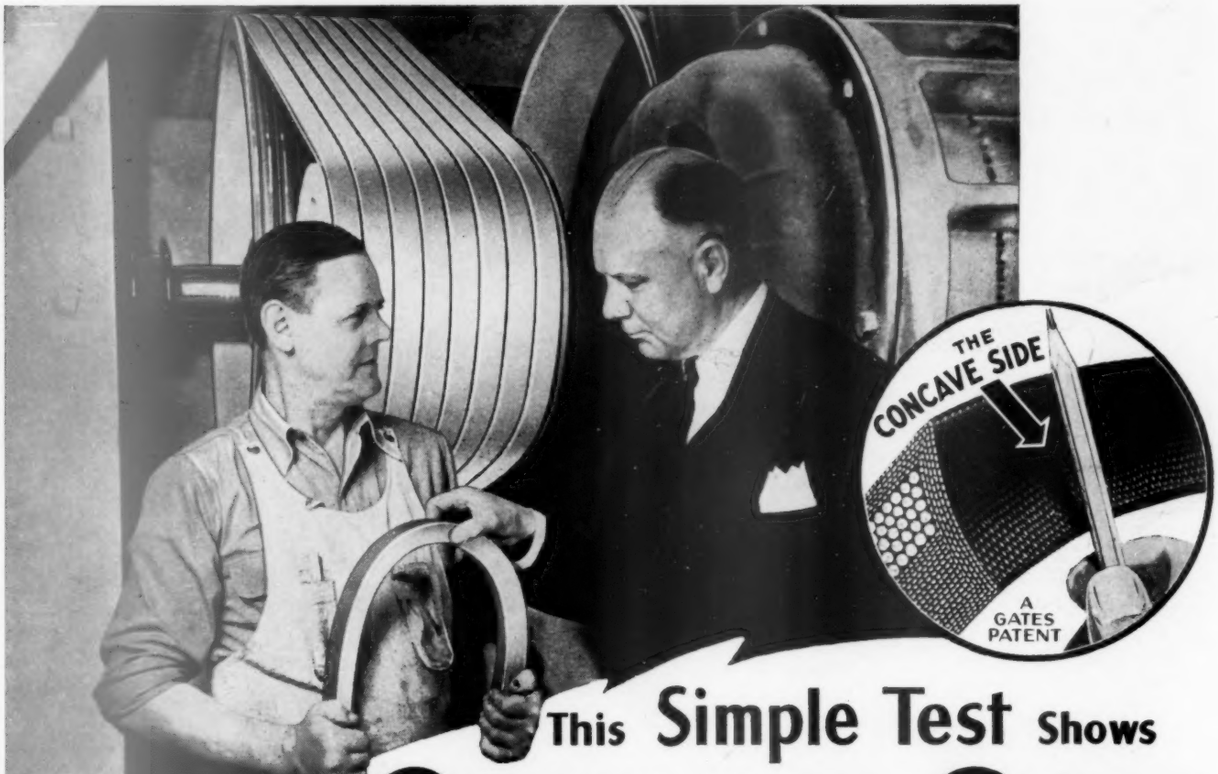
— on Koehring Trail-Dump absorbs road shocks, allows free movement of body for high speed travel over rough haul roads. Trail-Dump can climb 21" furrows without frame distortion. Free, universal action at upper end of hitch yoke allows wagon and tongue to move in any direction without body twisting strains. These important advantages permit high speed travel without penalty of twisting strains, excessive repair costs. High speed travel increases loads per hour, yardage per hour.

KOEHRING COMPANY
MILWAUKEE • WISCONSIN

Koehring Trail-Dump has oscillating steering axle, free universal action at top of hitch yoke . . . for high speed travel over rough haul roads.

KOEHRING HEAVY DUTY

HEAVY-DUTY CONSTRUCTION EQUIPMENT



This Simple Test Shows Why the CONCAVE SIDE Cuts Belt Costs!

What Happens When a V-Belt Bends

FIG. 1

FIG. 2

If you care about belt costs, pick up any V-belt you have handy and make this simple test:—

Bend the V-belt while you grip its sides and you will feel how the belt changes shape. The top, under tension, narrows. The bottom widens. The sides of the belt bulge out. Clearly, if its sides were straight to begin with, the bent belt is forced into a shape that does not fit the sheave groove—as shown in figure 1, on the left.

Now, bend a V-belt built with the patented Concave side. You get the same shape change, but now the new shape exactly fits the sheave groove—as shown in figure 2. There is no side-bulge. Results? (1) Uniform side-wall wear—longer life! (2) The belt gets a full side-width grip on the pulley—carries heavier loads without slippage. This cuts belt costs and saves power.

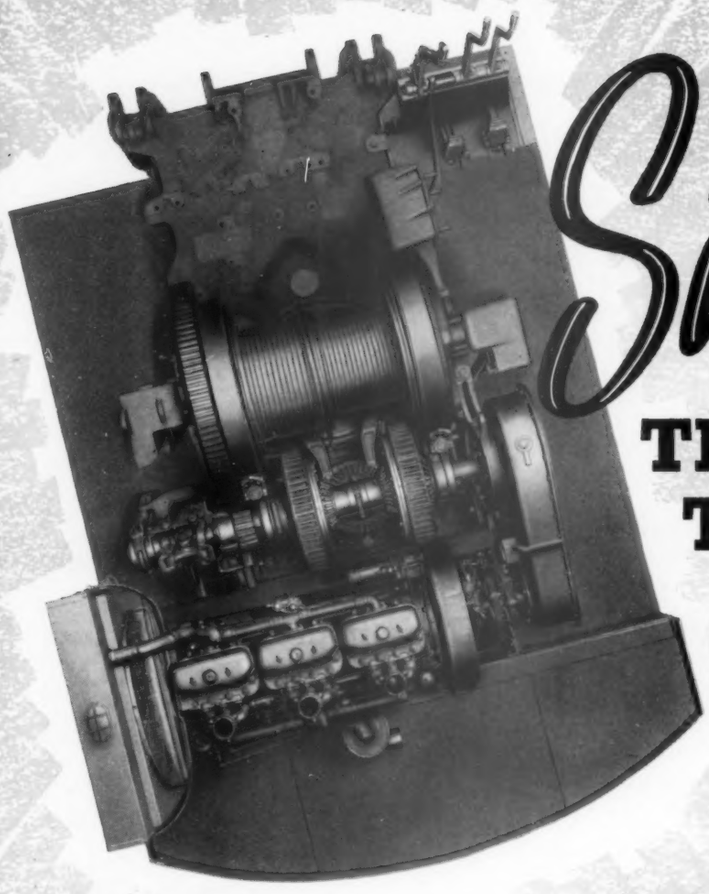
Only belts built by Gates are built with the Concave side, which is a Gates patent.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

Chicago, Ill. 549 West Washington
New York City 215-219 Fourth Avenue
Birmingham, Ala. 405 Liberty National Life Bldg.
Los Angeles, Cal. 2240 East Washington Blvd.
Denver, Colo. 999 South Broadway
Dallas, Tex. 2213 Griffin Street
Portland, Ore. 333 N. W. 5th Avenue
San Francisco, Cal. 2700 16th Street

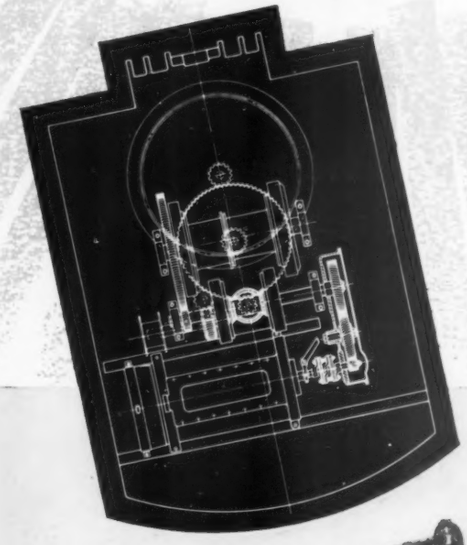


HERE'S *Simplicity*

THAT HELPS GET THE JOB DONE!

TIME is short—and you don't want to spend it on upkeep! Northwest simplicity of design makes upkeep easy, speeds up and simplifies adjustment and plays a large part in getting things done.

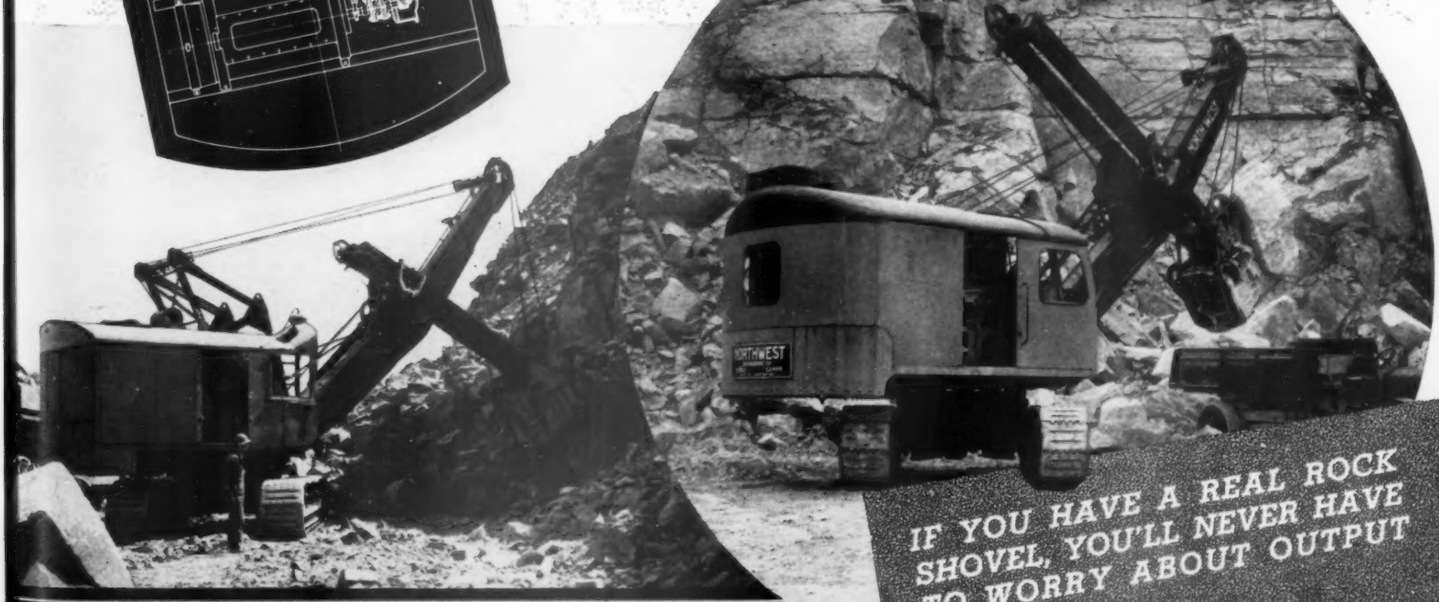
Look at the Northwest deck! There are few shafts, few gears. All high speed shafts roll on ball or roller bearings. Cast machinery side frames assure the maintenance of shaft alignment and reduce the wear that results from weaving shafting and bearings. Simple, dependable, compact. When you plan future contracts, remember Northwest simplicity saves time and money.



NORTHWEST ENGINEERING COMPANY

1806 Steger Building • 28 East Jackson Boulevard • Chicago, Illinois

NORTHWEST



SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

IF YOU HAVE A REAL ROCK SHOVEL, YOU'LL NEVER HAVE TO WORRY ABOUT OUTPUT IN DIRT!

The Pit-and-Quarry Industries Are Facing Their Biggest Job!

Cement, crushed stone, sand and gravel . . . the basic materials of construction . . . are widely available, reasonably plentiful, not subject to priorities. These ingredients of concrete keep the war construction program rolling on schedule. Besides their normal uses in building roads, factories, houses, dams, etc., they are being called upon to save iron and steel in countless ways. Ships, storage tanks, fences, bath-tubs, manhole covers . . . even sash weights . . . are to-day being manufactured of concrete to save precious iron and steel for war purposes.

Plants producing cement, crushed stone, sand and gravel are busy night and day turning out their prosaic, but vitally important products. They are using, wearing out, constantly in the market for tremendous quantities of machinery, equipment and supplies.

Reach this super-active market through PIT AND QUARRY, *first* in this field by any yardstick . . . in cir culation, in advertising volume, in reader preference. Write for a rate card to-day. Ask for a free market survey covering your products.

PIT AND QUARRY

3 THINGS TO REMEMBER ABOUT THIS DU PONT ELECTRIC BLASTING CAP

1. THIS METAL SHUNT provides a positive short circuit throughout the entire bared length of the leg wires—protecting you against accidental firing of the cap. It saves time, too, because it is removed simply by pulling the leg wires apart. Standard on caps with leg wires of 12 ft., or less, and available at no extra cost on longer lengths.

2. THIS PAPER BAND holds cap wires in an easy-to-handle, figure-8 fold, preventing tangling and kinking and lessening the possibility of misfires due to damaged insulation or broken wires. Tear the band and the natural resilience of the wires causes them to unfold easily in the desired manner. It's a simple, yet effective feature for added convenience and safety.

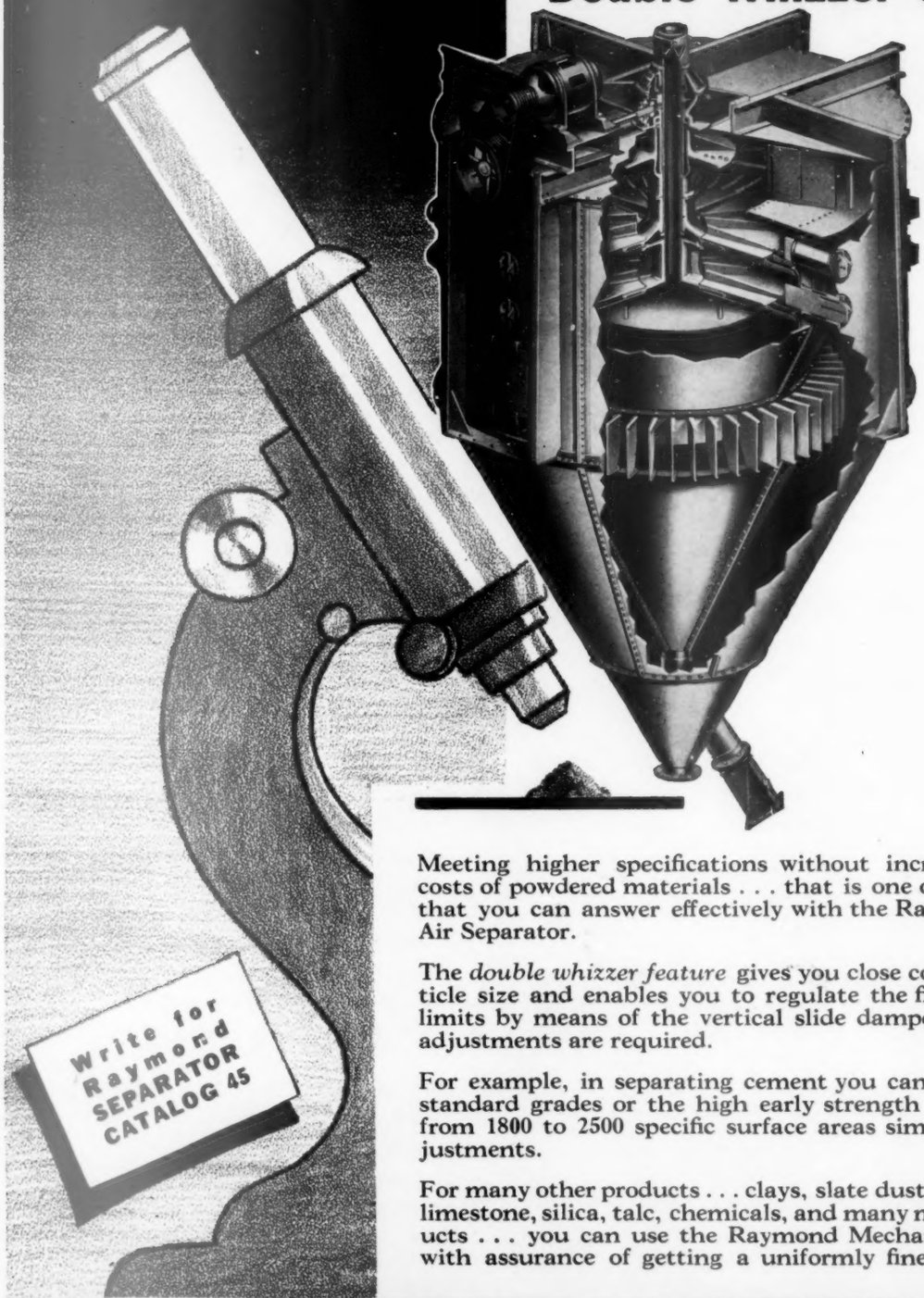
3. THIS DU PONT ELECTRIC BLASTING CAP IS ONE OF OVER 74,000,000 sold during the last 12 months—a greater endorsement by users than that given to the electric caps of any other manufacturer. E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Delaware.

DUPONT **EXPLOSIVES**

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

PRECISION SEPARATION

with The RAYMOND Double Whizzer Separator



Meeting higher specifications without increasing production costs of powdered materials . . . that is one of today's problems that you can answer effectively with the Raymond Mechanical Air Separator.

The *double whizzer feature* gives you close control over the particle size and enables you to regulate the fineness within wide limits by means of the vertical slide dampers . . . no interior adjustments are required.

For example, in separating cement you can produce either the standard grades or the high early strength cements, anywhere from 1800 to 2500 specific surface areas simply by the slide adjustments.

For many other products . . . clays, slate dust, gypsum, graphite, limestone, silica, talc, chemicals, and many manufactured products . . . you can use the Raymond Mechanical Air Separator with assurance of getting a uniformly fine finished material.

RAYMOND PULVERIZER DIVISION
COMBUSTION ENGINEERING COMPANY, INC.
1321 North Branch Street CHICAGO
Sales Offices in Principal Cities • • • In Canada: Combustion Engineering Corporation, Ltd., Montreal

PIT AND QUARRY

Vol. 35 OCTOBER, 1942 No. 4

CONTENTS

News of the Industry 27
The Victory Program . . . and Your Business 32
Editorial: Fairness in Taxation 39
Connecticut Plant Speeds Operations by Installation of Modern Machinery 40
Twin Portables Produce 400,000 Tons in Six Months on Nantahala Dam Job 45
Getting the Most from Your Conveyor Belting and Other Rubber Equipment 48
American Engineer Tells Problems of Producing Aggregates in African Bush 51
Wisconsin Road Builder Making Specialty of Limestone Fines 55
Suspended Flume Over River Solves a Vexing Problem for Kansas Producer 57
Trucking Firm Erects Slag-Crushing Plant on Inland Steel Company Dump 59
Neither Quake Nor Depression Daunts Hollywood Block-Maker 75
From Hand-Operated Machine to Modern Automatic Plant Over Period of 18 Years . 76
Equipment and Layout of Tampa Plant Marked by Originality 78
Pneumatic Pump and Pipe-Line Carry Cement to Ready-Mix Plants in Bronx 80

Personal Mention 62
Obituary 63
Labor Decisions 64
Occupational Diseases and the Law 66
Traffic News Digest 68
New Machinery and Supplies 70
Trade Literature 72

MEMBER AUDIT BUREAU OF CIRCULATIONS

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel and other nonmetallic minerals. Copyrighted 1942 by Complete Service Publishing Co., 538 South Clark Street, Chicago, Ill.

H. W. BAUMGARTNER
President

STANLEY A. PHILLIPS
Vice-President and Directing Editor

Field Editor:
W. E. TRAUFFER

Associate Editor:
HARRY F. UTLEY

Circulation Manager:
W. T. KLUSSMAN

Advertising Manager:
JAMES E. MONTGOMERY
Telephone HARrison 8558
Chicago, Ill.

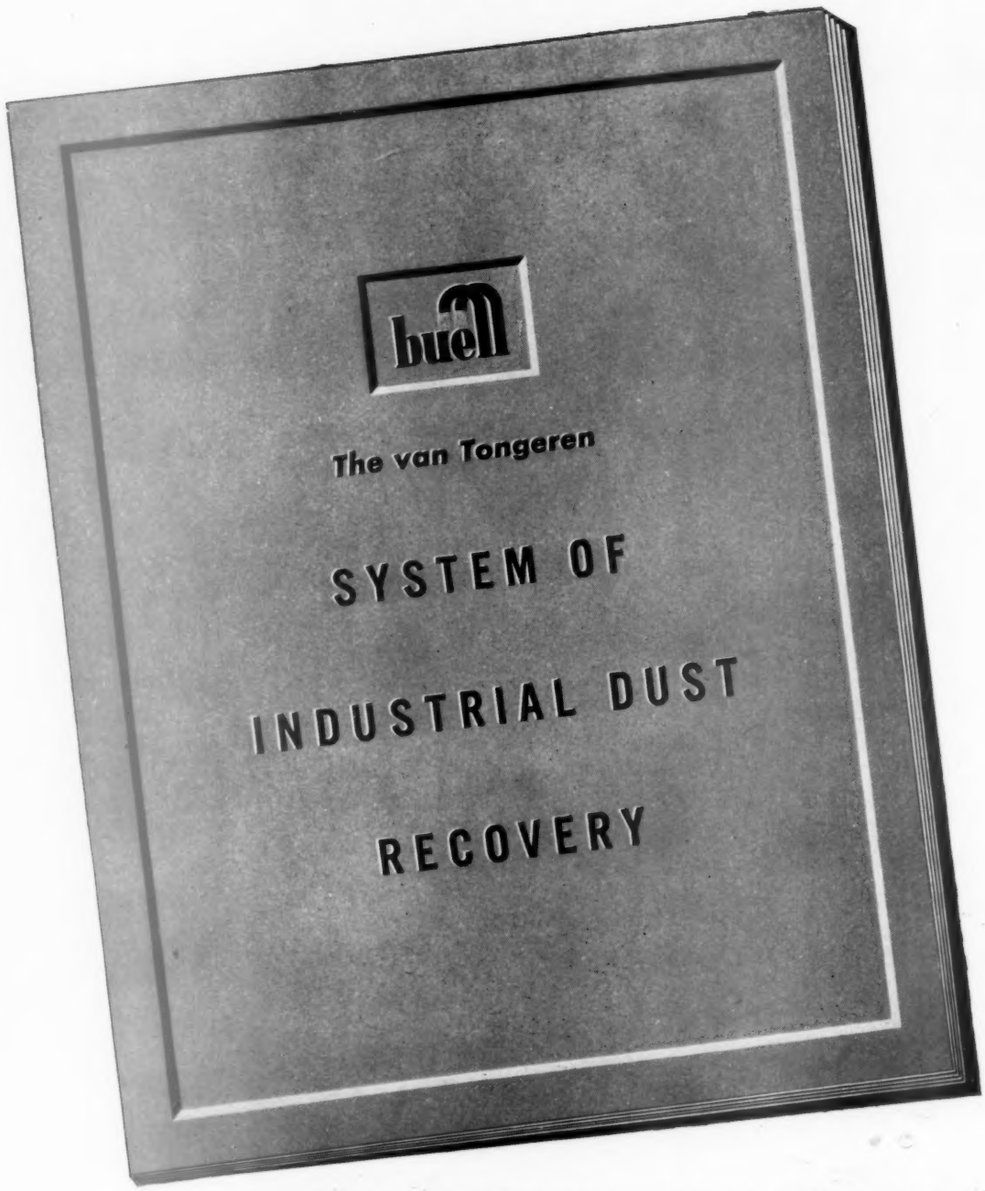
Eastern Advertising Manager:
W. A. WILSON
Room 1235, 101 Park Ave.
Telephone CAledonia 5-4438
New York, N. Y.

Central Advertising Manager:
D. R. EGBERT
859 Leader Bldg.
Telephone CHerry 4432
Cleveland, O.

Advertising Representatives:
A. C. PETERSEN
Chicago, Ill.

ROBERT W. WALKER
68 Post Street
Telephone SUtter 6706
San Francisco, Cal.
and
1709 West 8th Street
Telephone EXposition 8292
Los Angeles, Cal.

Field Representative:
H. C. FINLEY



A NEW BOOK ON DUST CONTROL

Vital to War Production

This new, 28-page book, prepared under the direction of the Buell engineering staff, discusses the importance of dust control in war production; and contains much authoritative and helpful material on the problems of dust in industry.

Of particular interest are the specific examples given of the wide use of Buell (van Tongeren) Dust Recovery Systems throughout industry. These may suggest possible applications to your own business. We shall be glad to send a copy of this informative book upon request to any interested executive or engineer. Simply ask for Bulletin Q-10.

BUELL ENGINEERING COMPANY, Inc.
Suite 5000, 12 Cedar Street, New York
Sales Representatives in Principal Cities

buell
DUST RECOVERY SYSTEMS

CONSULT BUELL *First* IN DUST RECOVERY
for Chemical • Rock Product • Metallic • Food • Flue or any other dusts

PIT AND QUARRY

CHICAGO OCTOBER, 1942

Production Started at World's Largest Magnesium Plant

The world's largest magnesium plant, with a rated capacity approximately 3½ times the total United States output in 1941, has started production, A. H. Bunker, Chief, WPB Aluminum and Magnesium Branch, announced on September 2.

It is the Basic Magnesium, Inc., plant at Las Vegas, Nevada, the latest of five important magnesium plants that have entered production in recent weeks. The others are the new Dow Chemical Company plant at Freeport, Texas; the Ford Motor Company plant in Michigan; the Permanente Metals Corporation, Mainteca, California plant, and the New England Lime Company's Connecticut plant.

Of these, the Basic and Dow plants use standard electrolytic processes. The other three use the new ferro-silicon process developed within the past year. These processes were discussed by Joseph T. Singewald, Jr. in PIT AND QUARRY, August, 1942, pages 45-48, 50. All five plants were financed and are owned by the government through the Defense Plant Corporation. The total cost approximates $175,000,000.

All the new plants were completed in record time, ranging from 10 months for the huge Basic Magnesium plant to 4 months for the ferro-silicon plants. Three more ferro-silicon plants are nearing completion and will commence operations later this year. An additional four electrolytic plants now are under construction.

Building Continues at High Level in August

New construction projects continued in very large volume through August, according to the F. W. Dodge Corporation. Total building and engineering contracts awarded in the 37 eastern states amounted to $721,028,000. This was the fourth largest monthly total on record, having been exceeded only in August of last year and June and July of this year. The decrease from August, 1941 was 5 per cent.; from July, 1942, 24 per cent.

Water-Filled Quarry Yields Much Scrap

The Inland Lime & Stone Company, Manistique, Michigan, is cooperating in the salvaging of an estimated 200 tons of scrap iron and rubber from one of its abandoned water-filled quarries.

The quarry had been used for years by motor-car dealers to dispose of "jaloppies" which had cluttered up their used-car lots.

Coming Events

October 27-29, 1942—Chicago. National Safety Congress, Sherman, Morrison and LaSalle Hotels.

December 2-4, 1942—St. Louis. Annual meeting, Highway Research Board, Statler Hotel.

January 25-27, 1943—Cleveland, Ohio. Annual convention, National Crushed Stone Association, Hollenden Hotel. (No machinery exhibit.)

January 27-29, 1943—Cleveland, Ohio. Annual convention, National Sand & Gravel Association, Statler Hotel. (No machinery exhibit.)

January 27-29, 1943—Cleveland, Ohio. Annual convention, National Ready Mixed Concrete Association, Statler Hotel. (No machinery exhibit.)

Peerless Installing Long Belt-Conveyor at Plant in Detroit

Special permits from the Ohio and Michigan highway departments were granted recently to allow shipping by truck of one of the largest belts ever produced by the Goodyear Tire & Rubber Company.

Manufactured in Akron, the 1,240-foot belt was transported by daylight only, on a Sunday, to the plant of the Peerless Cement Corporation in Detroit. It also was the first belt to be produced in the Detroit district under the new War Production Board specifications issued last fall.

Fifty-four inches wide and weighing 24,300 pounds, this belt will be Peerless Cement's main belt-conveyor, extending from the Detroit River to raw-material storage. It will move approximately 657,000 tons of stone and 175,000 tons of coal annually from boats docking near the plant.

Unloading of the crated belt at the Peerless plant was accomplished by building a crib as high as the truck floor. The crated belt extended 10 feet higher. After the crib was lowered to the ground, the crated belt was rolled inside the company's property to the place it was to be installed.

Elizalde Promotes New Arizona Cement Plant

Elizalde & Company, Ltd., of San Francisco is reported to be considering the construction of a Portland-cement plant in or near Tucson, Arizona.

W. C. Stevenson, the company's chief engineer, has been at Tucson for several weeks conducting core-drilling operations and priorities for the purchase of equipment are said to have been sought at Washington.

Alumina Extracted from Clay, Bauxite by Newest Process

Production of alumina, raw material from which aluminum is made, from low grade domestic bauxite and from clay, heretofore little used for aluminum metal, has been recommended to the War Production Board by the Advisory Committee on Metals and Minerals of the National Academy of Sciences.

Use of a proposed new process by the alumina plants in the country will make it possible to include a substantial quantity of clay with the bauxite feed, so that less bauxite will be needed and the limited domestic reserves conserved.

The committee reported on the results of a year's study of possible new sources of alumina from clay, tailings, high-silica bauxite, alunite, kaolin clay and the like, made at the request of WPB.

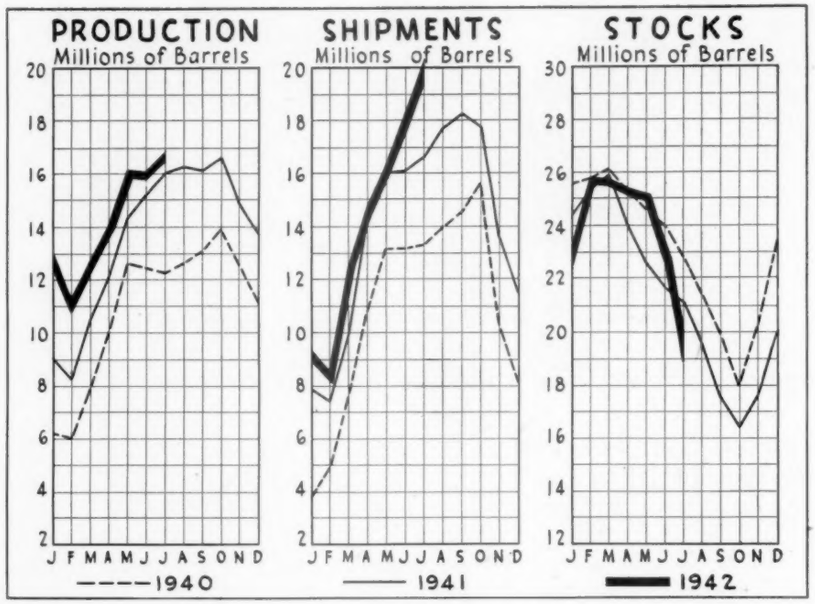
The principal source in the past of low-silica bauxite, preferred material for the production of alumina has been Dutch Guiana. Arkansas supplies the remainder. Submarine warfare threatens the amount of flow from Dutch Guiana and Arkansas high-grade deposits are limited, particularly in the face of the greatly expanded demand for aluminum for war use.

Alumina is aluminum oxide. The current method, called the Bayer process, for producing it is to treat low-silica bauxite with alkaline solutions which remove the greater part of the alumina. The tailings, containing iron, titanium and silicon compounds, are known as "red mud." The committee has found that treatment of this red mud by a recently developed sintering process will result in the recovery of substantial amounts of alumina. This process will make possible the production of alumina from high-silica bauxite as well as from current accumulations of red mud.

Of the several proposals to produce alumina directly from clay without the Bayer process, the committee looked with favor on a sintering process known as the modified Pedersen process, and recommends the construction of a test plant for the purpose.

Continuation and expansion of the current pilot plant operations around the country, such as those being operated by the Bureau of Mines and by Kalnite, Inc., in Utah, are urged.

Finally, the committee said, "because the best raw material for the production of aluminum is bauxite, it is suggested that the prospecting program for the discovery of new domestic deposits be prosecuted vigously and that the known domestic deposits be appraised as to grade, tonnage and mineability."



The Portland-cement industry in July, 1942 produced 16,833,000 barrels, shipped 20,501,000 barrels from the mills, and had in stock at the end of the month 18,941,000 barrels of cement, according to the Bureau of Mines. Production and shipments in July, 1942 showed increases of 5.2 and 22.9 per cent., respectively, as compared with July, 1941. Portland-cement stocks at mills were 10.6 per cent. lower than a year ago. The mill value of the shipments—79,344,000 barrels—in the first half of 1942, is estimated as $120,958,000.

Paid Circulation of Pit & Quarry Among Nonmetallic - Mineral Producers in Recent Years:

1942	(May)	6,513
1941	(November	6,179
	(May)	5,945
1940	(November)	5,397
	(May)	5,037
1939	(November)	4,641
	(May)	4,617
1938	(November)	4,496
	(May)	4,366
1937	(November)	3,971
	(May)	3,772
1936	(November)	3,654

CONTINUOUSLY FOR 25 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

78% increase in 5½ Years

Norman Smith, Feldspar Magnate, Dies at 69

Norman Gilpin Smith, 69, vice-president and director of the Consolidated Feldspar Corporation in charge of plants and mines in the Brunswick, Maine, area, died recently.

A leader in developing Consolidated Feldspar into one of the nation's leading producers, Mr. Smith in 1929 announced a $4,000,000 merger of the five largest feldspar companies in the United States, including the Gamine Feldspar Company, of Brunswick, of which he was president; Golding Sons Company, of Trenton, New Jersey; Erwin Feldspar Company, with plants in North Carolina and Tennessee; Dominion Feldspar Company, of Rochester, New York, and the Iscodotts Company, of Murphysboro, Illinois.

Electrocuted While Seeking Litter of Pups in Darkness

Birth of a litter of puppies to "Curley," a mongrel dog, was held directly responsible for the death of Raymond Greer, 47, a night watchman for the East St. Louis Stone Company at East St. Louis, Illinois.

When Mr. Greer went to work on August 17 he found a note from the day watchman. It read: "Curley may have had pups. Better look for them."

Fellow employees later found his body slumped beneath a switchbox and a physician said he had been killed by an electric shock, apparently while feeling under the box to see if the pups were there.

Later, the mother dog wandered in. Workmen followed her, and her litter of seven pups were found under a loading platform.

Atoyac, Mexican Cement Producer, Buys Another Mill

Cementos Atoyac, S. A., Puebla, Mexico, recently acquired the plant and properties of Cementos, S. A., at San Pedro de los Pinos, D. F. The new plant was built expressly for the purpose of producing masonry cements and will produce the "Plastocement" type of masonry cement formerly produced in the main Atoyac plant at Puebla. The new company, named Plastocement, S. A., will be operated as a subsidiary of the parent Atoyac company.

Present plans call for the additional installation of processing equipment to enable a production of about 4,500 metric tons of Plastocement monthly. Officials of the new company are: President, Julio Lacaud; Director General, Alton J. Blank; Manager, H. M. Ruffini; Superintendent, José Maurer.

The Plastocement company has obtained exclusive license from the Cement Process Corporation, New York, to produce masonry cements under patented processes controlled by the corporation. The concern will also operate lime kilns located at El Salto in the state of Hidalgo, producing there the lime necessary for its masonry product.

The Atoyac company at Puebla is at the present time installing additional kilns, mills and allied equipment for the purpose of increasing production of its "Atoyac" brand of general purpose cement by about 40 per cent. and this increase in capacity will become effective early next year.

The majority of the cement plants operating in Mexico are projecting capacity increases and it is estimated that by February of next year the industry will have increased its cement-producing capacity by about 60 per cent.

Pennsylvania Stone Group Holds Meeting

Members of the Pennsylvania Stone Producers Association, met in the Penn-Harris Hotel at Harrisburg on September 1 and heard addresses by E. W. Bowman, technical advisor, mining branch, of the War Production Board, and Lane Hildreth, advisor to the equipment division of WPB.

The session, the annual mid-summer gathering, was presided over by John Rice, Jr., vice-president of the General Crushed Stone Company, Easton, the association's president.

At the close of the meeting the members, wives and guests went to the Blue Ridge Country Club for a golf tournament and other diversion. A dinner was attended by about 250 and the day's activities were concluded with a floor show.

Oro Grande Plant, Idle 14 Years, Is Re-Opened

The Oro Grande, California plant of the Riverside Cement Company has re-opened after 14 years of idleness.

The company decided to resume production because of the unprecedented demand for cement and, after a short period of cleaning up and renovating the equipment, a force of operating men is again at work.

No finish grinding is being done, however, the clinker being shipped to the company's Crestmore plant.

Flames Damage Gravel Plant Near Salt Lake

Fire of undetermined origin consumed a trestle and part of a loading dock at the plant of the White Sand & Gravel Company at Val Verda, Utah a few weeks ago.

A fire-fighting unit from Salt Lake City fought the blaze for two hours before it was finally extinguished.

L. S. Lee Transferred to Rio de Janeiro

Lucas S. Lee, general superintendent of the Buffalo, New York processing plant of the Michigan Limestone & Chemical Company has gone to Rio de Janeiro where he is now general manager of Compania Meridional de Mineracoa, Brazilian subsidiary of the United States Steel Corporation engaged in the production of manganese.

Before joining Michigan Limestone & Chemical in 1924 he was for many years associated with the Robins Conveying Belt Company.

Dismantle Old Cement Plant at Newaygo

Structures at the old plant of the Newaygo Portland Cement Company at Newaygo, Michigan which has not operated in many years are being torn down and the steel is being disposed of as scrap to aid in the war effort.

Death Claims Jess Brown, Well Known in Cement Industry

W. Jess Brown, 59, sales manager and vice-president of the Dixie Sand & Gravel Corporation of Chattanooga and widely known in the cement industry, died August 26 at the University of Michigan hospital at Ann Arbor.

Mr. Brown, known to his many friends as "Buster" Brown, graduated in the class of 1907 at the University of Michigan as a chemical engineer. In the same year that he was graduated, he joined the United Kansas Portland Cement Company and later in 1907 joined the staff of the Dixie Portland Cement Company at Richard City, Tennessee.

With this concern until 1911, he next went to the Edison Portland Cement Company. The year 1913 saw him again associated with the Dixie Company, where he served until he was accepted for the army during World War I, being commissioned a captain in the ordnance department, stationed at the Sheffield, Alabama, nitrate plant.

On his return to civil life, he rejoined the Dixie Portland Cement Company, and continued as their traveling representative until 1921. In that year he became associated with the National Cement Company, of Birmingham, and in 1924 went with the Lehigh Portland Cement Company.

In 1928 he became sales manager for the Penn-Dixie Portland Cement Corporation, after Pennsylvania and Dixie consolidated and established headquarters in Chattanooga. The Dixie Sand & Gravel Corporation is a Penn-Dixie subsidiary.

Utica Hydraulic Cement Company Sold by Court

The Utica Hydraulic Cement Company, Utica, Illinois, was sold for $207,332 in the bankruptcy court at Ottawa, recently to the note holders under a trust deed.

The new owners are Howard C. Cary, Alta B. Fitzgerald, Viola B. Davison and Marjorie N. Niesen.

The sale included 550 acres of land owned outright by the company, mining rites on 1,000 acres of land, machinery, buildings, fixtures, patents, personal property, office equipment, stock on hand etc.

Charles J. Niesen, president of the American Silica Sand Company, Ottawa, made the bid for the four purchasing parties.

Puerto Rico's New Cement Plant Saves Needed Cargo Space

War construction in Puerto Rico has been greatly assisted by cement produced by the Puerto Rico Cement Corporation, established by the Puerto Rico Reconstruction Administration, Secretary of the Interior Harold L. Ickes declares.

"Reports of the corporation to the P. R. R. A. show that during the past year most of the plant's output has been delivered to the federal government for use in the construction of defense highways and other projects," Secretary Ickes said. "Lacking this domestic supply, much of the cement used would not have been available. The large volume used could not have been imported with our curtailed shipping facilities. Any portion of the needed volume that had been shipped would have occupied bottoms needed to carry food, medicine and other necessities to the island. A freighter of medium capacity would have to make a trip every two weeks to provide the island with the cement which the Puerto Rico plant is now equipped to produce."

The plant's earlier production was used largely in construction of hydro-electric dams. Without these, Secretary Ickes pointed out, Puerto Rico would now face a shortage of electric power because fuel to drive power-generating turbines could not be imported in the quantity needed with present shipping facilities.

The cement corporation, which began operations early in 1939, had accumulated $589,407 in profits and paid roughly $100,000 in dividends by May 31, 1942, according to the report of Guy J. Swope, Director of Territories and Island Possessions.

Arkansas Applies Lower Rates on Road Material

The Corporation Commission of the State of Arkansas on September 4 broadened the scope of commodities in carload lots to include chats, gravel, sand and rock asphalt in straight or mixed loads. In the past the rates applied on stone only.

The ruling will be of benefit to contractors using the material in road construction.

A 3-per cent. increase in freight rates on rock phosphate applying to bagged materials which was made effective June 12 in Illinois has been removed following protests by the Illinois Agricultural Association.

According to Guy W. Baxter, director of transportation for the I.A.A. both bulk and sacked materials now are shipped at the same rate.

Quarry Operator Sued Under Wage-Hour Act

The St. Joseph Quarries Company at St. Joseph, Missouri, has been made the defendant in a suit for $26,385.08, brought by employees of the concern who claim that half that amount is due them as minimum wages and overtime under the wage-and-hour act. The other half of the judgment is sought as liquidated damages.

The suit was filed by Cleo E. Parsons to whom the other employees assigned their claims. Judgment for attorney fees of $7,000 also is asked.

Win Patent on Casein Retardant for Cement

Casein, a constituent of cheese and milk, will slow down the setting rate of cement according to a patent (No. 2,290,956), won by Ernst Gruenwald of New York, Harvey R. Durbin of New Rochelle, New York, and William H. Tilley of Houston.

By adding but two-tenths to four-tenths of 1 per cent. of casein to the concrete before pouring, the setting rate is slowed down to where maximum desired properties in the set are obtained, the patentees claim.

The patent has been assigned to the Lone Star Cement Corporation.

Ohio Silica Operator Steps Up Production

Production at the Thompson Silica Company plant at Chardon, Ohio, has increased over 50 per cent. from last year and many war orders are being filled.

The following men became new managers of the company recently: Roy S. Troyer of Aurora, Ohio, and Leonard Bulle of Cleveland. Tom Thompson is the new superintendent.

Salt Lake City Plant Undergoes Improvement

Recent improvements at the plant of the White Hill Sand & Gravel Company, Salt Lake City, included the installation of a Plat-O 4- by 10-foot double-deck vibrating screen supplied by the Deister Machine Company.

Van Zandt, Universal Atlas Executive, to Serve as Consultant

The Universal Atlas Cement Company announces the following appointments effective September 3:

Paul C. Van Zandt, vice-president —Operating and Engineering—has resigned and has been appointed consulting engineer with offices at 208 South La Salle Street, Chicago.

Henry P. Reid, operating engineer, appointed assistant to the president.

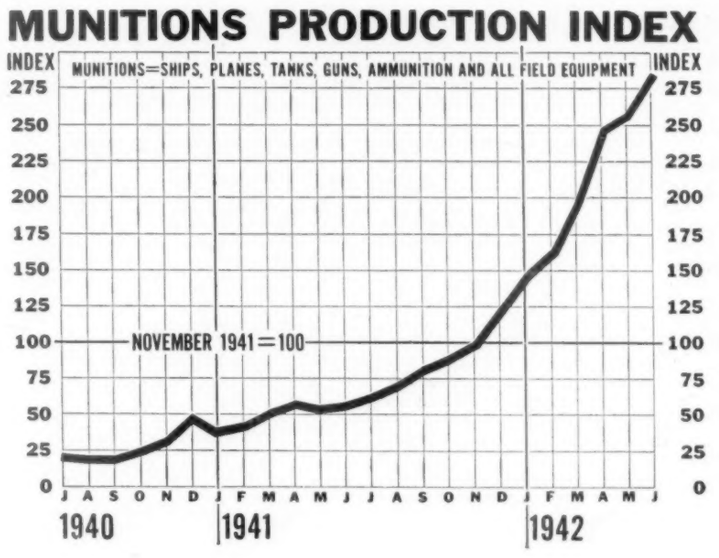
Louis M. Funderburg, superintendent, Leeds, Alabama, plant appointed operating manager, New York, succeeding Leonard Wesson, deceased.

Henry C. Schmielau, general auditor, appointed comptroller.

Mr. Van Zandt desires to have more leisure than his former duties and responsibilities allowed. Accordingly he resigned from active service as vice-president but continues in the capacity of consulting engineer with headquarters at the company's Chicago office. He has had 40 years' engineering, design and operation experience in the cement manufacturing field in the United States, Canada, Mexico, Cuba, Japan and China, and has built and started operation of a number of cement plants and waste-heat power plants. For 18 years he was connected with the Allis Chalmers Company, designing and remodeling cement plants, correcting difficulties in operations, and increasing their efficiency. He is the author of a number of technical papers on the cement industry in the Orient. He is a graduate in mechanical engineering from Purdue University and is a member of the American Society of Mechanical Engineers.

Mr. Reid has been with the company for 19 years as special engineer and more recently as operating engineer. His work has dealt particularly with kiln operation, fuel economy, and rock and clinker grinding. Mr. Funderburg, with the company over 18 years, became assistant superintendent at Leeds in 1930 and superintendent in 1936. J. P. Camm, assistant superintendent at Leeds, succeeds Mr. Funderburg as superintendent. Before coming to the Leeds plant he was superintendent of the company's gypsum operation at Watonga, Oklahoma. In 1911 Mr. Schmielau joined the Universal Atlas Company where he served successively as clerk, bookkeeper, assistant treasurer and general auditor, prior to his appointment as comptroller.

CURRENT BUSINESS INDICATORS



The first encouraging progress in many months toward the replacement of the rickety priorities rating system and the cumbersome Production Requirements Plan, with a system of direct and complete allocation of scarce materials, has been made with the appointment of Ferdinand Eberstadt, former head of the Army-Navy Munitions Board, as vice-chairman of the War Production Board with all-embracing power over the flow of materials. This development marks a fundamental victory for Donald Nelson in his behind-the-scenes struggle with the Army and Navy procurement agencies for control over war production, and is viewed in Washington as the first fruitful step in Mr. Nelson's recently announced "get-tough" reorganization of the WPB so far as the improvement of the floundering materials situation is concerned.

Earlier in the month the WPB chairman had stripped the Army and Navy field procurement officers of their priorities-issuing power, and had concentrated all production control in an executive committee, composed of representatives of the Army, Navy and Maritime Commission and headed by Charles E. Wilson, former president of the General Electric Company. In the new setup Mr. Eberstadt will be responsible for planning the allocations of scarce materials, while Mr. Wilson will supervise the actual output of munitions and other supplies.

As chairman of the Army and Navy Munitions Board Mr. Eberstadt was said to be a staunch advocate of a system of complete materials control which would guarantee to each contractor a sufficient quantity of materials to enable him to meet his production schedules. Under this system every three months the War Production Board would allocate the available supply of materials to the armed services and other major claimants, who would in turn apportion these materials among their contractors. This contrasts sharply with the system now in use under which allocations to Army, Navy and other claimants are implemented principally by means of a priority system which is unequal to the task of providing an even flow of materials to the production lines. Under the new system of direct allocations, for which detailed plans are still lacking, a more effective utilization of our materials resources and productive facilities is expected by the top-ranking production officials.

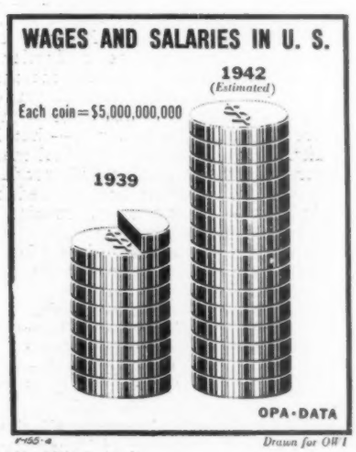
Closer coöperation between the War Production Board and the Army and Navy, and the elimination of many differences which have hindered effective joint action in the past is expected as a result of Mr. Eberstadt's appointment.

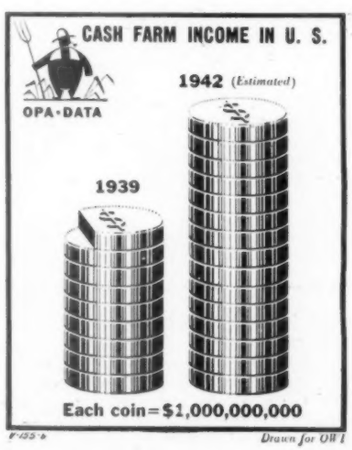
Probably the most important development of the month on the home front was the President's firm stand in his anti-inflation message to the Congress on Labor Day, September 7, in which he asked for specific authority to "stabilize the cost of living, including the price of all farm commodities."

Reiterating his seven-point program of last April, the President noted that only two points, greater taxation and stabilization of farm prices, required Congressional action, and warned that the delay in enacting these into law has imperilled our entire war economy.

Promising to take steps toward the effective stabilization of wages simultaneously with the stabilization of the cost of living, the President warned that if the Congress fails to act on his recommendations by the first of October, he would invoke his executive authority to halt the inroad of inflation upon the national economy. It is a virtual certainty that a bill granting broad authority for the stabilization of prices and wages will be sent to the White House before the deadline set by the President.

Industrial production in August reflected again the tremendous gains made in munitions output by climbing from a July index of 180 to a new high of 183 (1935-1939 = 100), the second greatest monthly gain in over a year.





The Victory Program ★ ★ ★ ★ *and Your Business*

AGRICULTURAL LIMING MATERIAL PRICES.—Acting to insure an adequate supply of agricultural liming materials—widely used to increase the productivity of certain types of soils—Price Administrator Leon Henderson on September 9 established a specific procedure for the adjustment of the maximum prices of those producers whose March selling prices were unduly low.

This action, which pertains only to sales and deliveries to the Agricultural Adjustment Agency, is contained in Amendment No. 9 to Revised Supplementary Regulation No. 4 to the General Maximum Price Regulation, became effective September 12, 1942.

The great bulk of agricultural liming materials, which are obtained mainly from limestone deposits, is distributed to farmers by the Agricultural Adjustment Agency, the agency purchasing most of the material from producers on a delivered-to-the-farmyard price basis. Producers sell to the agency on the basis of annual contracts, and many of the prices in these contracts—some of which date back as far as May 1941—do not take into account increases in transportation and production costs. As a result, producers who were operating under such contracts in March 1942—the base pricing period of the General Maximum Price Regulation—have maximum prices which, in many instances, do not reflect current costs.

The new action by the Administrator is designed to correct this situation and, by providing for adjustment of maximum prices, to enable producers to enter into contracts with the Agricultural Adjustment Agency at prices which will cover the cost of production and transportation of the liming materials and provide a reasonable margin.

The amendment, which establishes the method by which adjustments may be obtained, applies only to sales and deliveries to, or contracts with, the Agricultural Adjustment Agency, by producers whose established maximum prices for the liming materials are below the general level of prices prevailing during March 1942.

The procedure provides that a seller, whose ceiling prices cause substantial hardship and are below the general level of last March, may apply for adjustment and, while the application is being considered, enter into a contract with the Agricultural Adjustment Agency for delivery of liming materials at the maximum price requested in the application. If the price requested in the application is modified or denied by OPA, the contract price must be revised accordingly. The amendment provides that if the OPA acts on the application within 30 days, it may be required that the difference between the approved price and the requested price must be refunded to the Agricultural Adjustment Agency. However, action on the application after 30 days from the filing date is not retroactive and the authorized price applies only to sales or deliveries made from the date of OPA's modification or disapproval.

Specific limitation is placed on the price which the producer may request and which he may charge pending action on his application. This price may not be in excess of the seller's current cost of production and transportation charges plus the dollar-and-cents margin over costs on the date the seller last entered or proposed to enter into a contract with the Agricultural Adjustment Agency.

The amendment provides that application for adjustment be filed at the local office of the AAA where the producer submits his bid for delivery of liming materials.

An additional modification contained in the amendment provides that the AAA may request the seller to submit a bid on a different basis than that established by the General Maximum Price Regulation for the particular seller if proper adjustment in price is made. In other words, a producer may contract to deliver on an "f. o. b. plant" basis, even though his maximum price is established on a "delivered-to-farm" basis, if the selling price reflects the decrease in cost of transportation such a change would involve. This modification will allow the AAA flexibility in changing the delivery basis if it finds such changes advisable.

In a statement of considerations accompanying the regulations, OPA pointed out that this method of granting relief is desirable as it allows an adjustment of maximum prices for those producers suffering genuine hardship. At the same time it does not disturb the price level of producers who are able to submit bids under their maximum prices established by the General Maximum Price Regulation.

CEMENT PRICES WILL COVER TRANSPORATION INCREASES—In order to assure an adequate supply of cement in so-called "deficiency areas," as well as to provide a definite method of allocating recent increases in the cost of transporting cement, the Office of Price Administration September 18 issued a specific price regulation for sales of this product by manufacturers.

The new measure, titled Maximum Price Regulation No. 224, Cement, has been drawn up to meet economic changes which have developed in the industry in recent months and removes sales of this product by producers from the provisions of the regulations which have governed them up to the present — namely the General Maximum Price Regulation and Maximum Price Regulation No. 188. Sales by dealers remain, with few exceptions, under the General Maximum Price Regulation.

The major provisions of the regulation establish maximum prices for sales by manufacturers within their normal market areas and for those made outside the areas they normally serve—the deficiency areas. In addition certain modifications are made in regard to cash discounts in sales to the government or its agencies. The schedule applies to the basic type 1 and type 2 Portland cements as well as to type 3 Portland, white cement, oil-well cements, masonry cements and most other special grades.

As regard sales by a producer within the area he customarily serves—that is, the district in which the individual manufacturer normally markets his product under the basing point system used by the industry—adjustment of maximum prices was necessary, as some intra-state freight rates have increased since March, the base pricing period of the General Maximum Price Regulation.

These increases are due to the fact that only about half the stated increased intrastate freight rates during March following a 6-per cent. interstate increase authorized by the ICC on March 18 for a number of commodities, including cement. Since March, however, all these states, with the exception of Texas, have

THE WAR EFFORT

MANPOWER

	Number	Percentage Change from August 1941
August 1942:		
Labor force	56,200,000	—0.4
Unemployed	2,200,000	—59.3
Employed:	*54,000,000	+5.9
Nonagricultural	*42,800,000	+4.9
Agricultural	*11,200,000	+9.8

FINANCE

	In millions of dollars
Authorized program June 1940-August 31, 1942	**214,759
Airplanes	45,500
Ordnance	45,053
Miscellaneous munitions	32,658
Naval ships	18,460
Industrial facilities	17,601
Posts, depots, etc.	15,534
Pay, subsistence, travel for the armed forces	14,916
Merchant ships	8,494
Stockpile, food exports	4,851
Housing	1,392
Miscellaneous	10,300
Total expenditures, June 1940-August 31, 1942	**44,741
June 1940—June 1942	
Authorized program	**170,288
Contracts and other commitments	**129,998
Expenditures	**34,765
Sales of War Bonds—	
Cumulative May 1941-August 1942	8,255
August 1942	697

PLANT EXPANSION

June 1940 to latest reporting date	
Government commitments for war plant expansion; 1,887 projects, June 30	13,524
Private commitments for war plant expansion; 8,686 projects, June 30	2,996

EARNINGS, HOURS, AND COST OF LIVING

		Percentage Increase from Same Month of 1941
All manufacturing industries — June:		
Average weekly earnings	$37.99	19.2
Average hours worked per week	42.6	3.1
Average hourly earnings	84.0c	13.8
Cost of living (1935-39=100):	**Index**	
May 1942	116.0	12.7
July 1942	116.9	11.0

*New series starting August 18.
**Preliminary.

established the higher authorized freight charges.

As a result, those manufacturers of cement—which is generally sold on the basis of delivered price at destination—whose freight charges increased after March have not been able to add these gains in cost to their maximum prices as established by the General Maximum Price Regulation. Normally, increases and decreases in such costs are reflected in the producer's delivered prices and inability to add these increased charges has tended to disrupt the normal marketing practices of the producers.

The new regulation eliminates these discrepancies by providing that the producer's maximum price for Types 1 and 2 Portland cement—whether made on the basis of f. o. b. mill or delivered,—is the price the producer charged, or would have charged, the individual purchaser between March 1 and March 15, 1942 plus any increase in freight rates since March 17, 1942 for shipments to the purchaser's destination.

In arriving at maximum prices for the other grades and types of cement the regulation provides that the producer add or deduct from the maximum prices established for the two basic Portland cements the average differential which prevailed on March 15 for white cement, oil-well cement, masonry cement and so forth.

To prevent the development of a price squeeze for dealers who purchase from producers whose maximum prices may be increased somewhat by the addition of the increase in freight charges, the regulation provides that dealers may add to their maximum prices as established by the General Maximum Price Regulation an amount not in excess of the increase in the producer's delivered price.

A feature of the regulation is the establishment of specific dollars-and-cents maximum prices, on an f. o. b. mill basis, for cement shipped out of the territory not normally served by the producer. The concentration of essential war construction in areas of the country not equipped to produce the necessary volume of cement has resulted in a deficiency of cement supply in these localities. This is due partly to the use of a complex pricing system in the cement industry, based on delivered prices, which makes it uneconomical for producers to ship farther than a certain distance from their mills due to the excessive transportation cost involved.

In recognition of the military nature of the construction work in the deficiency areas, and in order to make it economically possible for mills to supply these localities with adequate amounts of cement, the regulation sets prices for such shipments on an f. o. b. mill basis and thereby provides for the absorption of the extra, and relatively-high, transportation costs, by the government agencies carrying out the work.

The regulation restricts sales to deficiency areas which are priced according to this provision to those sold to a person who will not resell the cement in the course of trade to a person other than a contractor or sub-contractor with any war procurement agency of the United States or a "lend-lease government" or any of its agencies. This provision, OPA officials explained, will assure the delivery to war procurement agencies of cement moving long distances from surplus production areas to deficiency areas.

The maximum f. o. b. prices established for these out of territory shipments are equal to 95 per cent. of the average net mill realization during the year 1941 for mills located in Districts 1 to 10, as established by the Bureau of Mines. Because cement prices were unduly depressed in Districts 11 and 12 during a portion of 1941, the maximum prices for mills in these areas are fixed at 95 per cent. of average net mill realization for the first quarter of 1942. The specific prices are for types 1 and 2 Portland cement, with the same differentials allowed for the other types of cement which prevailed for the individual producer on March 15. These specific prices are:

District No.:	Price
1 (Eastern Pa., N. J., Md., Dela.)	$1.33
2 (N. Y., Conn., R. I., Mass., N. H,, Vt., Maine)	1.36
3 (Western Pa., West Va.)	1.27
4 (Michigan)	1.28
5 (Ind., Ill., Wis., Ky.)	1.42
6 (Ga., Ala., Tenn., La., Miss., N. C., S. C., Va., Fla.)	1.44
7 (Eastern Mo., Iowa, Minn., N. D., S. D.)	1.54
8 (Neb., Kans., Okla., West Mo., Ark.)	1.43
9 (Texas)	1.58
10 (Colo., Utah, Mont., Wyoming, N. M.)	1.73
11 (California)	1.43
12 (Oregon, Washington)	1.81

OPA officials explained that use of District figures, which are set at 95 per cent. of average net mill realization because producers normally receive a somewhat smaller return for shipments out of their normal territory, will assure reasonable uniformity in pricing.

This restriction does not prevent a dealer handling such shipments and in order to enable the dealer to participate without suffering a financial loss, it is provided that his maximum selling price for a shipment of this character is the delivered cost of the cement plus the margin customarily received in similar transactions involving like quantities and types of cement between October 1, 1941 and March 31, 1942.

The Regulation preserves all the customary trade practices of the cement industry, including discounts, package charges, and other trade differentials, except that certain minor modifications, agreed to by the Cement Industry Advisory Committee,[1] are recognized as necessary due to the contingencies of war emergencies.

CIVILIAN CONSTRUCTION LIMITED—Drastic cuts have been made by the War Production Board in the amount of civilian construction to be allowed without specific authorization under the provisions of a revision of Conservation Order L-41, effective September 7. The L-41 order placed all civilian construction under rigid control.

The types of construction have been reclassified, making distinctions within residential and non-residential categories and reducing in most instances the amount of construction for which no authorization is necessary.

At the same time prospective builders are cautioned against making commitments for materials until permission to build actually has been granted. The fact that a builder has all the necessary materials on hand and needs no priorities assistance will not, in itself, govern whether he should be permitted to use them in construction.

The new classes of construction established by the revision of L-41, with their former and present cost ilmits, follow:

Type of Construction	Former Limit	Present Limit
Residential	$500	$200
Multiple residential	$500	$1,000
Agricultural	$1,000	$1,000
Industrial	$5,000	$5,000
Certain types of commercial	$5,000	$200
Other types of commercial, including highway, sub-surface and utilities construction	$5,000	$1,000

Included among the types of commercial construction reduced from $5,000 to $200 are buildings designed for use as clubs, lodges, associations, fraternity or sorority houces, auditoriums or assembly halls.

Also included are buildings designed for occupancy by not more than 5 establishments selling or dispensing goods, merchandise, food or drink, or providing services. In the latter group are small stores, restaurants, soda fountains, bars, and tailor, barber and cobbler shops. Large quantities of materials have been going into their construction under the provisions of the original order allowing up to $5,000 to be spent during any continuous 12-month period.

Multiple residential construction includes buildings designed to provide living space for more than 5 families or divided into more than 5 suites.

Industrial construction includes buildings designed for use in the manufacture, processing or assembling of goods or materials.

In every instance where estimated costs are under the established limits, the owner, before he may begin construction, must be able to acquire enough material to complete the project without priorities assistance. Furthermore, the project must not require the use of any material, on the site or off the site, to supply electricity, gas, water, steam, telephone or sewage-disposal service.

It was explained in the revised order that repair work, on which there is no limit, does not include reconstruction or restoration of construction damaged or destroyed by fire, flood, tornado, earthquake, act of God or the public enemy.

There is no change in the original provision that residential construction damaged by fire, etc., after December 31, 1941, may be restored without authorization. Agricultural construction damaged in that manner after September 7 may also be restored in cases where the Department of Agriculture determines that immediate reconstruction is essential to the agricultural program. It is provided, however, that a regular application form PD-200 must be filed within two weeks of such determination.

Industrial and other restricted construction similarly damaged may be restored where immediate reconstruction is necessary for the prosecution of the war or protection of public health or safety. In such an instance a telegraphic report must be made to the War Production Board within 5 days, setting forth certain data, and form PD-200 must be filed within the next two weeks.

"In carrying out the provisions of this revised order," William V. Kahler, Chief of the Construction Bureau said, "we intend to apply to each case the basic principle underlying the order, namely, the conservation of materials, labor and construction equipment to the fullest extent possible for the essential needs of

[1] [See P&Q, August 1942, page 31 for membership of this committee.—Ed.]

war, instead of a more literal interpretation of the clauses of the order.

"Every builder is urged to ask himself several questions and give careful consideration to their answers before filing applications for authorization to begin construction. He should ask himself whether his project is necessary to the successful execution of the war. He should ask whether it isn't practical to rent or convert instead of building new. He should ask if his design is the simplest possible, just sufficient to meet minimum requirements. He should ask if there are available all the utilities, water, electricity, gas, etc., needed for his project.

"Even if he can answer all these questions satisfactorily, he should consider carefully the possibility of deferring his project for the duration. If every prospective builder met these criteria himself, there would be considerably fewer applications to handle in the bureau and consequently the essential ones could be handled with greater dispatch.

"We want to caution all prospective builders against making commitments for materials with the hope that authority to build will be given. The mere fact that a builder has all the materials on hand and requires no priority assistance, will not of itself govern whether he should be permitted to use them in construction. The sole criterion is whether the project is necessary to the prosecution of the war or to maintain public health and safety."

CONSTRUCTION EQUIPMENT INVENTORY—All owners of used construction equipment are now required, under Limitation Order L-196 issued by the WPB on August 31, to report to their Regional offices on form WPB 1159 a complete list of their used construction equipment. Except in the case of drilling equipment owned by mines operating under a serial number assigned by P-56, mining enterprises owning any used construction equipment of the types listed in Schedule A below must register it with the Used Construction Equipment Regional specialist in their regional offices. A list of these offices is given herewith.

The full text of the order follows:

PART 3058—USED CONSTRUCTION EQUIPMENT

[Limitation Order L-196]

The fulfillment of requirements for the defense of the United States has created a shortage in the supply of rubber and other materials used in the production of construction equipment for defense, for private account and for export; and the following order is deemed necessary and appropriate in the public interest and to promote the national defense:

§ 3058.1 *Limitation Order L-196*—(a) *Applicability of Priorities Regulations.* This order and all transactions affected thereby are subject to all applicable provisions of the priorities regulations of the War Production Board, as amended from time to time, except to the extent that any provision hereof may be inconsistent therewith, in which case the provisions of this order shall govern.

(b) *Inapplicability of This Order.* This order shall not apply to the Army, Navy, Maritime Commission or to any person or agency who has acquired used construction equipment for export outside the continental limits of the United States.

(c) *Definitions.* (1) "Persons" means any individual, partnership, association, business trust, corporation, governmental corporation or agency, or any organized group of persons, whether incorporated or not, except those excluded by paragraph (b) hereof.

(2) "Construction equipment" means any of those products listed in Schedule A attached hereto and made a part of this order.

(3) "Used" when applied to construction equipment, means any construction equipment which has been delivered to an ultimate consumer.

(d) *Registration of Used Construction Equipment.* Any person who owns construction equipment shall within 30 days after the date of issuance of this order register such equipment by completing, signing, and returning by mail WPB Form 1159 to Used Construction Equipment Regional Specialist in the War Production Board Regional Office in the region in which such equipment is located.

(e) *Registration of Change of Status of Used Construction Equipment.* Within one week after any used construction equipment (1) is moved from the project on which it is being used; (2) becomes idle after completing its work on that project even if not moved from the project; (3) not being on a project is put into use on a project; or (4) has had its ownership changed; any person owning such equipment shall register such change of status by completing, signing and returning by mail WPB Form 1333 or such other form as may be in the future specified by the Director General for Operations to Used Construction Equipment Regional Specialist in the War Production Board Regional Office in the region in which such equipment is located.

(f) *Records.* All persons affected by this order shall keep and preserve for not less than 2 years accurate and complete records concerning the movement of used construction equipment from projects.

(g) *Audit and Inspection.* All records required to be kept by this order, shall, upon request, be submitted to audit and inspection by duly authorized representatives of the War Production Board.

(h) *Violations.* Any person who wilfully violates any provision of this order, or who, in connection with this order, wilfully conceals a material fact or furnishes false information to any department or agency of the United States is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of, or from processing or using material under priority control and may be deprived of priorities assistance.

(i) *Appeal.* Any person affected by this order who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, or that it would result in a serious problem of unemployment in the community, or that compliance with this order would disrupt or impair a program of conversion from non-defense to defense work, may apply for relief by addressing a letter to the War Production Board Regional Office in the region in which the equipment is located setting forth the pertinent facts and the reasons why such person considers that he is entitled to relief. The Director General for Operations may thereupon take such action, if any, as he deems appropriate by the amendment of this order or otherwise.

(j) *Communications.* All communications concerning this order shall be addressed to Used Construction Equipment Regional Specialist in the War Production Board Regional Office in the region in which the equipment is located. (P.D. Ref. 1, as amended, 6 F.R. 6680; W.P.B. Reg. 1, 7 F.R. 561; E.O. 9024, 7 F.R. 329; E.O. 9040, 7 F.R. 527; E.O. 9125, 7 F.R. 2719; sec. 2 (a), Pub. Law 671, 76th Cong., as amended by Pub. Laws 89 and 507, 77th Cong.)

Issued this 31st day of August 1942.

AMORY HOUGHTON,
Director General for Operations.

SCHEDULE "A"

Buckets, clam-shell.
Buckets, concrete.
Buckets, drag-line.
Buckets, orange-peel.
Buckets, scraper (bottomless) for dragline operation.
Buckets, shovel.
Cranes, crawler-mounted power.
Cranes, tractor-mounted power.
Cranes, rubber-tire-mounted power.
Disks, road.
Ditchers, blade.
Ditchers, ladder.
Ditchers, wheel.
Dragline, *see* Cranes.
Draglines, slack-line.
Draglines, walking.
Dredges & dredge equipment.
[1]Drilling machines, earth and rock blast-hole drills.
[1]Drilling machines, earth and rock core drills.
[1]Drilling machines, earth and rock jack hammers.
[1]Drilling machines, earth and rock rock drills.
Earth-boring machines.
Excavators, *see* Power shovels.
Graders, blade or pull type earth-moving.
Graders, elevating earth-moving.
Graders, self-propelled earth-moving.
Graders, under-truck earth-moving.
Hammers, pile.
Rollers, road tamping.
Rollers, road, tandem.
Rollers, road, 3-wheeled.
Scrapers, carrying or hauling, both drawn and self-propelled.
Shovels, crawler-mounted power.
Shovels, rubber-tire-mounted power.
Shovels, tractor-mounted power.
Batching plants contractors.
Bins, construction-material.
Conveyors, construction-material belt.
Crushers, construction-material asphalt.
Crushers, construction-material cone.
Crushers, construction-material gyratory.
Crushers, construction-material jaw.
Crushing plants, other than stationary, construction.
Distributors, bituminous.
Finishers, bituminous.
Hoists, contractors (other than tractor-mounted).
Loaders, portable bucket type (other than coal).
Mixers, bituminous.
Mixers, concrete agitator and truck.
Mixers, concrete-construction.
Mixers, paving.
Plants, asphalt.
Pumps, concrete.
Screening plants, construction-material (other than stationary).
Washing and screening plants, portable.
Winches, contractors.
Track-laying tractors.
Angledozers.
Bulldozers.
Tractor-operated control units.
Internal-combustion engines — Diesel and gasoline unattached.

[1]Except when owned by mines operating under a serial number assigned by P-56.

REGIONAL OFFICES
WAR PRODUCTION BOARD

REGION 1: 17 Court Street, Boston.—Covers Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

REGION 2: Chanin Building, 122 East 42nd Street, New York.—Covers New York state and Newark, New Jersey.

REGION 3: Suburban Station Building, Philadelphia.—Covers Maryland, Delaware, Virginia, part of Pennsylvania and part of New Jersey.

REGION 4: Candler Building, Atlanta, Georgia.—Covers Tennessee, North Carolina, South Carolina, Georgia, Florida. Alabama and Mississippi.

REGION 5: Union Commerce Building, Cleveland.—Covers Ohio, Kentucky, West Virginia and part of Pennsylvania.

REGION 6: 20 North Wacker Drive, Chicago.—Covers Illinois, Indiana, Iowa and part of Wisconsin.

REGION 7: Mutual Interstate Building, Kansas City, Missouri—Covers Nebraska, Kansas, Missouri and Arkansas.

REGION 8: Fourth Floor, Fidelity Building, Dallas, Texas.—Covers Oklahoma, Texas and Louisiana.

REGION 9: 521 U. S. National Bank Building, Denver.—Covers Wyoming, Utah, Colorado and New Mexico.

REGION 10: 1355 Market Street, San Francisco.—Covers California, Nevada and Arizona.

REGION 11: 7310 Woodward Avenue, Detroit.—Covers part of Michigan, Toledo, Ohio.

REGION 12: 326 Midland Bank Building, Minneapolis.—Covers North Dakota, South Dakota, Minnesota, part of Wisconsin, and part of Michigan.

REGION 13: Stuart Building, Seattle.—Covers Washington, Oregon, Idaho and Montana.

CONSTRUCTION PROJECT APPLICATION—A revised project application form PD-200, which is to be used for obtaining priority assistance and authority to begin construction for most construction items and equipment, is now available for use, the War Production Board announced September 14.

This form must now be used as an application for:

Authority to begin construction pursuant to the provisions of the Stop-Construction Order L-41.

Priority assistance for any project involving new construction, reconstruction, remodeling or conversion.

Priority assistance for equipment when construction is involved. PD-1A applications formerly submitted for such equipment will no longer be accepted. When no construction is involved, however, PD-1A's will continue to be accepted for equipment.

This revised PD-200 does not replace PD-105, used for privately-financed war

housing, or PD-406, used for remodeling houses in critical defense areas. Neither does it replace form PD-3A, used for projects owned by the armed services and identified as "command" construction.

PD-200 applications are available at all WPB field offices, the County War Boards of the Department of Agriculture, field offices of the Federal Housing Authority, field offices of the Army, Navy and Maritime Commission and many financial institutions.

Instructions as to filing the executed PD-200 forms may be obtained at all field offices of WPB.

The coverage of the new PD-200 form has been increased and more detailed information is required. For simple types of construction, however, instructions have been drawn in such a manner that an applicant need fill out only the portion of the form applicable to his particular case.

The number of copies of the form to be filled in has been reduced from five to four.

The form is now used in other than "command construction," To reduce delays in processing the PD-200 form has been correlated with the utilities application for utilities work in connection with a construction project.

Machinery and equipment required for a project have been separated from the construction materials and are listed in new sections. The machinery section has been divided among metal-working equipment, power equipment and other machinery and equipment. The materials list has been increased.

In cases where structural steel is used a certificate must be attached to PD-200 stating that WPB emergency specifications have been complied with.

INDUSTRIAL-TRUCK INVENTORY —An appeal to owners of used industrial (power) trucks to take an immediate inventory of such equipment and transmit the results to the War Production Board so that vitally-needed used trucks can be diverted quickly to war operations was made September 12 by C. S. Williams, Chief of the General Industrial Equipment Branch, and Ernest Tupper, Chief of the Inventory and Requisitioning Branch.

Many used industrial (power) trucks, Mr. Williams and Mr. Tupper said, are lying idle in plants throughout the country or are not receiving full use from their owners. They are used to handle material in factories, warehouses, etc.

Mr. Williams and Mr. Tupper urged all owners of such used equipment to submit the following information to the Inventory and Requisitioning Branch, War Production Board, Washington, D. C.:

Company name and address; location of equipment; number of trucks available; maker's name and model number; powered by electric battery, gas-electric, or gasoline motor; if battery-powered, maker and voltage of battery; load-carrying capacity in pounds; year manufactured (if available); condition; repairs and parts required, and type.

Specific information for different types is requested as follows:

No-lift platform: Length, width and height of platform.

Lift platform: Length, width and height of platform in low position; weight of lift; telescopic or non-telescopic lift.

Fork: Height of lift; center or end control; telescopic or non-telescopic; length of fork.

Crane truck: (Industrial shop type only, but including any electric model)—Capacity in pounds (give radius); length of boom; swivel or stationary; manual or power slew; three- or four-motor (if electric).

Tractor: Three- or four-wheel; maximum drawbar pull in pounds.

MANILA CORDAGE AVAILABLE —Manila cordage may now be purchased for permitted uses without specific authorization of the Director General for Operations, the War Production Board announced September 9.

In an amendment to Order M-36, covering the processing and sale of manila cordage, the WPB withdrew the previous requirement that all deliveries be specifically authorized and substituted the provision that there be attached to every purchase order a certificate naming the war agency for which the material is requested and also giving the contract number.

Control over distribution of the material will continue to be exercised, since deliveries may be made only to the war agencies listed in the order.

The amendment also provides that the Metals Reserve Company may purchase frozen stocks of Manila fiber.

An exception to the original order providing for the unrestricted sale of manila cordage not suited to the needs of the armed forces is revoked by the amendment.

In the future, permission for sale of this material must be secured through appeal to the Director General for Operations.

Imports of manila fiber have been entirely cut off since the invasion of the Philippines. The present supplies are restricted to consumption by the Army, Navy, Maritime Commission, War Shipping Administration, and a very limited list of essential uses, described as follows in the order:

(ii) Purchase orders for the following categories and uses:

(*a*) Purse lines for use in commercial fishing;

(*b*) Lines not less than 4½" in circumference used exclusively in towage and by ocean-going vessels engaged in the carriage of cargo and passengers as common carriers;

(*c*) Manila drilling cables for use in drilling oil wells, gas wells, and mines;

(*d*) Manila torpedo lines for use in handling explosives;

(*e*) Manila shot lines.

(iii) Purchase orders for manila cordage

(*a*) Carrying a preference rating of A-1-j or higher, evidenced by a preference rating certificate, or

(*b*) For use on vessels engaged in the carriage of cargo, as common carriers of passengers, in towage, in lighterage or in fishing for commercial fish markets or canneries, for use in hoisting for the loading or discharge of cargo of such vessels, and for uses of shipbuilding. *Provided, however,* That the manila fiber for the manufacture of cordage covered by the purchase order of the type specified in this subparagraph (e) (2) (iii) (a) shall have been put into process by a cordage processor on or before September 14, 1942; *And provided further,* That manila fiber for the manufacture of cordage covered by purchase orders of the categories specified in subparagraph (e) (2) (iii) (b) shall have been put into process by a cordage processor on or before July 4, 1942.

ODT FIELD OFFICES — The Office of Defense Transportation on September 9 announced the creation of nine regional field offices under the Division of Motor Transport and the appointment of seven of the managers of those offices, located at key points throughout the country. The names of the other two managers will be announced soon.

The divisional reorganization move, which also included an increase in the number of Motor Transport Division district offices from 55 to 143, followed closely the action of Joseph B. Eastman, Director of the ODT, in assuming control of virtually all commercial motor vehicles and requiring them to carry Certificates of War Necessity[1]

The new regional offices will be under the direction of John L. Rogers, Director of the Division, and will supervise and coördinate the work of the district offices of the division, particularly in their administration of the War Necessity program, designed to further conservation of commercial-vehicle equipment. The managers will have authority to staff the district offices in their respective regions.

Cities in which the regional offices will be situated are: New York, Philadelphia, Atlanta, Cleveland, Chicago, Kansas City (Missouri), Dallas, Denver and San Francisco.

All regional managers named so far were associated with the ODT at the time of their appointments. Their regional offices and their former positions with the ODT follows:

William J. Clarke, New York manager of the Division of Motor Transport's field office at New York.

Melvin R. Greene, Philadelphia, manager of the field office at Baltimore.

John G. Caley, Atlanta, manager of the field office there.

Robert D. Thomas, Cleveland, consultant to Mr. Rogers on tire maintenance.

Harry L. Gormley, Chicago, manager of the field office there.

Asa J. Merrill, Denver, formerly of the ODT General Counsel Staff.

Harold C. Arnot, San Francisco, manager of the field office at Seattle, Wash.

The locations of the present and new field offices are shown in the table on page 36.

OVERTIME AND DOUBLETIME —By an executive order dated September 9 and effective October 1, 1942, the President set up rigid controls covering the payment of premium compensation (overtime or doubletime) for the duration of the war on "all work relating to the prosecution of the war." These controls will be exercised apparently in spite of the provisions of any existing wage agreements which may conflict with them.

No premium may be paid for work performed on Saturday or Sundays unless these days are the sixth and seventh consecutive days worked in an employee's regularly-scheduled workweek. Premium compensation may be paid, at one and one-half times the regular rate, for work on New Year's Day, the Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and on Memorial Day "or one other such holiday of greater local importance."

The text of the order follows:

WHEREAS many labor organizations have already adopted the patriotic policy of waiving double-time wage compensation or other premium pay for work on Saturday, Sunday and holidays, as such for the duration of the war; and

WHEREAS it is desirable and necessary in the prosecution of the war, and to insure uniformity and fair treatment for those labor organizations, employers, and employees who are conforming to such wage policies that this principle be universally adopted:

NOW, THEREFORE, by virtue of the authority vested in me by the Constitution and the statutes, as President of the United States and as Commander in Chief of the Army and Navy, it is hereby ordered:

I. That the following principles and regulations shall apply for the duration of the war to the payment of premium and overtime wage compensation on all work relating to the prosecution of the war:

A. No premium wage or extra compensation shall be paid to any employee in the United States, its territories or possessions, for work on Saturday or Sunday except where such

[1] [See *Trucks Under Government Control*, pages 37-38.—Ed.]

work is performed by the employee on the sixth or seventh day worked in his regularly scheduled workweek and as hereinafter provided.

(1) Where, because of emergency conditions, an employee is required to work for seven consecutive days in any regularly scheduled workweek a premium wage of double-time compensation shall be paid for work on the seventh day.

(2) Where required by the provisions of law or employment contracts, not more than time and one-half wage compensation shall be paid for work in excess of 8 hours in any day or 40 hours in any workweek or for work performed on the sixth day worked in any regularly scheduled workweek.

B. No premium wage or extra compensation shall be paid for work on customary holidays except that time and one-half wage compensation shall be paid for work performed on any of the following holidays only:

New Year's Day
Fourth of July
Labor Day
Thanksgiving Day
Christmas Day

and either Memorial Day or one other such holiday of greater local importance.

II. All federal departments and agencies shall conform the provisions in all existing and future contracts negotiated, executed, or supervised by them to the policies of this order. All such departments and agencies shall immediately open negotiations to alter provisions in existing contracts to conform them to the requirements of this order.

III. Nothing in this order shall be construed as requiring a modification of the principle that every employee should have at least one day every employee should have at least one day of rest in every seven days. The continuous operation of plants and machines in prosecuting the war does not require that employees should work seven consecutive days.

IV. Nothing herein shall be construed as superseding or in conflict with the provisions of the statutes prescribing the compensation, hours of work and other conditions of employment of employees of the United States.

V. All federal departments and agencies affected by this order shall refer to the Secretary of Labor for determination questions of interpretation and application arising hereunder.

VI. The provisions of this order shall become effective October 1, 1942.

FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,
September 9, 1942.

TRUCKS UNDER GOVERNMENT CONTROL—Joseph B. Eastman, Director of the Office of Defense Transportation, on September 9 took control over the use of virtually all trucks, buses, taxicabs, and similar commercial vehicles in a drastic move to attain further conservation of such equipment for war purposes.

In a general order supplementing conservation regulations already in effect for such facilities, Mr. Eastman established a new program under which every vehicle affected by the order will be required to carry a Certificate of War Necessity. The order (General Order ODT No. 21) becomes effective November 15.

The Certificate of War Necessity will govern the maximum mileage that may be operated or the minimum loads that may be carried, or both, by all vehicles to which they are issued. No operator subject to the order will be able to obtain gasoline, tires, or parts without a certificate.

In a statement issued with the order Mr. Eastman asserted that the country's present supply of commercial vehicles and their tires "must be given the best possible care; they must be driven with equal care, and every mile of unnecessary travel must cease."

"The Office of Defense Transportation has promoted policies and has issued orders with this end in view," Mr. Eastman added. "The results have been good, but much remains that can and must be done. The situation is not hopeless, but it calls for all possible precautions."

FIELD OFFICES, OFFICE OF DEFENSE TRANSPORTATION DIVISION OF MOTOR TRANSPORT, OFFICE FOR EMERGENCY MANAGEMENT
(Offices in light-face type will be established. Regional offices are marked with an asterisk.)

State	City	Field Manager	Address
Alabama	Birmingham	W E Duncan	917 Comer Bldg
	Mobile		
	Montgomery		
Arizona	Phoenix	William M Cox	305 Security Bldg
Arkansas	Little Rock		153 Federal Bldg
California	Fresno		
	Los Angeles	Ray Long	955 Western Pacific Bldg
	Sacramento		
	*San Francisco	W B Grummel	531 Monadnock Bldg
Colorado	*Denver	E Robert Baker	407 Denham Bldg
	Pueblo		
Connecticut	Hartford	John F Maertz	624 Capitol Nat'l Bank Bldg
	New Haven		
Delaware	Dover		
Dist. of Columbia	Washington		
Florida	Jacksonville	Herbert E McDaniel	705 Lynch Bldg
	Miami		
	Orlando		
	Tallahassee		
	Tampa		
Georgia	*Atlanta	John G Galey	1322 Candler Bldg
	Augusta		
	Macon		
	Savannah		
	Waycross		
Idaho	Boise	Maurice H Greene	426 Idaho Bldg
Illinois	*Chicago	Harry Gormley	1905 Civic Opera Bldg
	Cairo		
	Danville		
	Peoria		
	Quincy		
	Rockford		
	Springfield		
Indiana	Evansville		
	Fort Wayne		
	Indianapolis	George F Burnett	809 Circle Tower Bldg
	South Bend		
	Terre Haute		
Iowa	Davenport	Paul V Kortkamp	704 Kahl Bldg
	Des Moines	John H Gillespie	408 Crocker Bldg
	Mason City		
Kansas	Topeka		
	Wichita	W R Bartling	220 Federal Bldg
Kentucky	Lexington		
	Louisville	F S Crawford	31 Kenyon Bldg
Louisiana	Baton Rouge		
	New Orleans	W R Atkins	1852 Canal Bldg
	Shreveport	John F Dawson	922 Giddens-Lane Bldg
Maine	Bangor		
	Portland		
Maryland	Baltimore	Melvin R Greene	917 Munsey Bldg
	Hagerstown		
Massachusetts	Boston	Eli C Benway	527 80 Federal St
	Springfield		
Michigan	Cadillac		
	Detroit	J Robert Cooper	1116 Penobscot Bldg
	Grand Rapids		
	Lansing		
	Saginaw		
Minnesota	Duluth		
	Minneapolis	Frank T Corcoran	226 Midland Bank Bldg
Mississippi	Jackson		
Missouri	Jefferson City		
	*Kansas City	R C Coleman	307 Bonfile Bldg
	St. Louis	A D Mason	1007 Boatmens' Bldg
	Springfield	Emmett Fogarty	302 Securities Bldg
Montana	Billings		
	Butte		
Nebraska	North Platte		
	Omaha	V J Hons	802 Woodman of the World Bldg

State	City	Field Manager	Address
Nevada	Reno		
New Hampshire	Concord		
New Jersey	Atlantic City		
	Newark		
	Trenton		
New Mexico	Albuquerque		
New York	Albany	Lawrence F McDonald	1122-A 112 State St
	Binghamton		
	Buffalo	Floyd B Piper	1505 Genesee Bldg
	*New York	William J Clarke	1520 Chanin Bldg
	Peekskill		
	Rochester		
	Syracuse		
	Utica		
North Carolina	Asheville		
	Charlotte	Lafayette R Stallings	1409 Liberty Life Bldg
	Raleigh		
	Wilmington		
	Winston-Salem		
North Dakota	Fargo	W H Thompson	508 First Nat'l Bank Bldg
	Bismark		
Ohio	Canton		
	Cincinnati	Henry A Leachman	906 Union Trust Bldg
	*Cleveland		1440 Standard Bldg
	Columbus	Donald T Maentz	311 Old Post Office Bldg
	Dayton		
	Toledo	H Martin Walker	415 Security Bank Bldg
	Youngstown		
	Zanesville		
Oklahoma	Oklahoma City	William W Warren	336 Key Bldg
	Tulsa		
Oregon	Medford		
	Portland	Herman Sites	609 Bedell Bldg
Pennsylvania	Allentown		
	Altoona		
	Erie		
	Harrisburg		
	*Philadelphia		1101 Gimbel Bldg
	Pittsburgh	Charles T Walker	534 Fulton Bldg
	Scranton		
Rhode Island	Providence		
South Carolina	Charleston	William B Love Jr	36 Broad St
	Columbia		
South Dakota	Pierre		
	Sioux Falls		
Tennessee	Chattanooga		
	Knoxville		
	Memphis	R T Lawrence	1510 81 Madison Bldg
	Nashville	Victor E Nichol	901 Medical Arts Bldg
Texas	Amarillo		
	Austin		
	*Dallas	S Joyner Cole	704 Santa Fe Bldg
	El Paso	Frank N Lanotte	103 Federal Bldg
	Houston	J R Quattlebaum	614 Federal Office Bldg
	Lubbock		
	San Angelo		
	San Antonio	John C Ross	827 Majestic Bldg
	Waco		
Utah	Salt Lake City	Richard W Candland	1202 Continental Bldg
Vermont	Montpelier		
Virginia	Norfolk	Maclin Simmons	609 Bankers Trust Bldg
	Richmond		
	Roanoke		
Washington	Seattle	Harold C Arnet	5529 Stuart Bldg
	Spokane	Holley I Smith	607 Hutton Bldg
West Virginia	Charleston		
Wisconsin	Green Bay		
	LaCrosse		
	Madison		
	Milwaukee	Russell R Lynch	828 N Broadway
	Wausau		
Wyoming	Casper		
	Cheyenne		

The order applies to all types of trucks and other rubber-tired vehicles propelled or drawn by mechanical power and built or rebuilt primarily for the purposes of transporting property, except motorcycles, and all motor vehicles used in the transportation of passengers or which are available for public rental, including ambulances and hearses, but not including private passenger cars.

The Certificate of War Necessity will be drawn with the objective of assuring that:

1—Operations be confined to those which are necessary to the war effort or the essential domestic economy.

2—Operations be so conducted as to attain maximum utilization of the equipment involved.

3—The operators conserve and providently utilize rubber or rubber substitutes and other critical materials used in the manufacture, maintenance, and operation of all vehicles covered by the order.

In addition to private passenger cars, vehicles exempt from the order are:

1—Commercial vehicles operated by or under the direction of the military or naval forces of the United States or state militias.

2—Commercial motor vehicles operated by dealers exclusively for the purpose of selling such vehicles.

3—Motor vehicles having a capacity of not more than 7 persons which are used in group riding to haul persons to and from work, if such vehicles are not used in any other service for compensation.

The order authorizes any enforcement officer of any state or political subdivision to report to the ODT any instance in which a vehicle is operated without a valid Certificate of War Necessity or in violation of any ODT order.

The ODT retains the right to amend, modify, recall, suspend, cancel or revoke any certificate in whole or in part for good cause.

The order further provides that the ODT may cause any vehicle for which a certificate has been issued "to be operated in such manner, for such purpose, and between such points as the Office of Defense Transportation shall from time to time direct" regardless of "any contract, lease, or other commitment, express or implied, with respect to the operation of such commercial motor vehicle."

Authority also is provided to cause any vehicle affected by the order to be leased or rented, except "by a person engaged in transporting property in a commercial motor vehicle for compensation to a person not engaged in such transportation."

Applications for Certificates of War Necessity must be made on forms to be supplied the operators by the ODT. They must be submitted to the ODT field offices nearest the respective home offices or principal places of business of the applicants, unless otherwise directed.

The certificates will not be transferable. Each certificate will specify:

1—The name and address of the person to whom it is issued.

2—The vehicle or vehicles covered.

3—The purposes for which and the conditions under which the vehicle or vehicles may be operated.

4—Such other terms or conditions as the ODT may from time to time direct.

A certificate issued for a single motor vehicle must be carried on the vehicle at all times. When a certificate is issued for a fleet of vehicles (three or more vehicles owned or operated by one person), a fleet unit certificate must be carried on each vehicle.

Except as authorized by rationing regulations of the Office of Price Administration or other rationing or allocating agency, no person on and after November 15 may furnish gasoline, parts, tires, or tubes to any operator affected by the order unless the operator or driver presents a certificate or signs a receipt, showing the number of the certificate covering the purchase.

Under an arrangement between ODT and OPA coupons or other instruments authorizing the purchase of fuel, tires, and tubes will be issued only to operators presenting certificates. Furthermore, gasoline and accessories will be rationed by OPA rationing boards in accordance with the terms of the certificates.

The order further provides that the tires of every vehicle affected by the order must be checked at an inspection agency designated by the OPA every 5,000 miles or at the end of each 60-day period, whichever occurs first.

The order prohibits the continued use of any vehicle thus inspected unless the inspection agency designated by the OPA has certified that all reasonable adjustments, repairs or replacements "necessary to conserve and providently utilize" the vehicle's tires have been made, or unless the operator is unable, under rationing regulations, to make such repairs.

Each operator affected by the order will be required to keep a weekly record of all operations on a form prescribed on the back of each certificate and must keep such other records and make such reports as may be required from time to time by the ODT.

The records must be made available to accredited representatives of the ODT at all reasonable times.

Mr. Eastman emphasized that existing orders and statements of policy governing the operation of commercial motor vehicles will remain in full force and effect until further notice and will be used as the basis for issuance of individual certificates.

The text of Mr. Eastman's statement explaining the reasons for and objectives of the new program follows:

OFFICE OF DEFENSE TRANSPORTATION
WASHINGTON, D. C.

To All Operators and Users of Commercial Motor Vehicles:

The United States now has about 4,890,000 non-military trucks and about 154,000 buses. The trucks are carrying a tremendous volume of property and the buses a tremendous volume of people. Our railroads are operating to near capacity. They could not carry the traffic which the trucks and buses are carrying: First, because they do not have the capacity, and second, because they are so located that they could not handle a great part of this traffic, even if they had the capacity.

Most of this traffic is essential. Our country will suffer severely, and the war effort will suffer, if the trucks and buses and other commercial motor vehicles find themselves unable to continue to handle this essential traffic, or any large part of it. *They must be kept rolling.*

No more civilian trucks are being built. The plants which built them have gone into the building of military trucks or other war products. Much the same is true of the buses. The supply of repair parts is critically limited. There is, and for months at least will continue to be, a serious shortage of tires. There is grave danger that our supply of all types of commercial motor vehicles will be badly depleted, unless we conserve them to the utmost.

This means that these commercial vehicles and their tires must be given the best possible care; they must be driven with equal care; *and every mile of unnecessary operation must cease. Your* welfare and the safety of our country demand that this be done.

The Office of Defense Transportation has promoted policies and has issued orders with this end in view. The results have been good, but much remains that can and must be done. The situation is not hopeless, but it calls for all possible precautions.

We propose, therefore, to issue to the operator of each commercial motor vehicle a *Certificate of War Necessity* which will govern the maximum mileage to be operated and the minimum loads to be carried. These certificates will be required not only for trucks and buses, but also for taxicabs, "jitneys," automobiles which are available for public rental, and certain other similar classes of motor vehicles. These latter types have been included because of the necessity and desirability of correlation of this program with that of governmental allocation of gasoline, tires, and tubes. The application form and instructions which will be sent to each operator will tell how to go about getting these certificates.

A certificate must be carried on each such vehicle. Otherwise it can not lawfully be operated. Without a certificate no gasoline, tires or repair parts can be obtained. For failure to comply with its provisions, a certificate can be taken away.

But it is not proposed to use these certificates in any arbitrary or ruthless way. Their purpose is to bring home to operators of all commercial motor vehicles the necessity for treasuring these precious vehicles and tires, and to give each operator a definite guide for his individual action. They will also provide a ready means for controlling wilful and persistent offenders.

The certificates will not supersede outstanding ODT orders and public statements of policy. Those orders and policies will remain in effect unless and until they are formally amended, superseded, or revoked. At the outset the limits of mileage, motor fuel, or load requirements specified by the certificates may in some instances be more liberal than full compliance with outstanding orders or statements of policy would justify. The duty to comply will remain, and the limits will be brought into line, wherever it becomes evident that such a situation exists. The purpose will be to trim the certificates as quickly as may be down to the basis of maximum conservation reflected in the outstanding orders and statements of policy. The trimming will be done under uniform instructions from the central office by men in the field in close contact with the operations.

It is quite possible that the situation with respect to tires, parts, and other supplies may so develop that more radical steps in conservation must be taken than are now reflected in outstanding orders and statements of policy. If so, necessary changes will be made in the manner above indicated. In no event will the adjustment of the certificates to accord with such necessities be left to the unguided discretion of the field force.

In giving the information required by the application forms, the operators should be guided by operating records, if they have them. If they do not have records, they must in the beginning make the best estimates that they are able to make. We count on them to make honest estimates. They should not forget that their own best interests demand that they ask for no more mileage and no less loading than is absolutely necessary. Records will be required to be kept in the future.

I realize that the certificates will be an annoyance and that the first reaction of many will be to regard them as a nuisance. In normal times they could have no justification. But these are not normal times. We are at war, and no war can be fought and won without suffering and trouble. Few things are more essential to an all-out war effort than to keep our commercial motor vehicles, public and private, in active service. The danger that we may lose their services to a considerable extent as time goes on is so great that it demands all possible precautions for the care and conservation of this necessary means of transportation.

There must be no slackening whatsoever in the efforts which are now being made to save the trucks, buses, and other commercial motor vehicles and their tires. The certificates are intended, not to discourage, but to encourage, stimulate, protect, and augment those efforts. They are only one further means of helping the operators individually to do their full part in the campaign to keep these vehicles rolling in the cause of Victory.

In carrying out this program we shall need the whole-hearted cooperation, not only of the motor vehicle operators, but also of shippers, consignees, farmers, merchants, manufacturers, administrative agencies, and the general public. The program has no other purpose than to protect the best interests of all concerned and of our country.

The full text of General Order ODT 21 follows:

TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICES OF DEFENSE TRANSPORTATION
(General Order ODT 21)

PART 501—CONSERVATION OF MOTOR EQUIPMENT
SUBPART M—CERTIFICATES OF WAR NECESSITY FOR AND CONTROL OF COMMERCIAL MOTOR VEHICLES

By virtue of the authority vested in me by Executive Order No. 8989, dated December 18,

1941, and by Executive Order No. 9156, dated May 2, 1942, and in order to conserve and providently utilize vital transportation equipment, material, and supplies, including rubber; and to provide for the prompt and continuous movement of necessary traffic, the attainment of which purposes is essential to the successful prosecution of the war,

IT IS HEREBY ORDERED, That:

Sec.

501.90 Definitions
501.91 Certificate of War Necessity required
501.92 Application for certificate
501.93 Issuance of Certificate of War Necessity
501.94 Certificate of War Necessity not transferable
501.95 Contents and conditions of certificate
501.96 Motor fuel and commercial motor vehicle parts, tires or tubes
501.97 Inspection of tires
501.98 Records and reports
501.99 Enforcement officers authorized to report violations
501.100 Suspension or revocation of certificate
501.101 Control of vehicles
501.102 Exemptions
501.103 Communications
501.104 Effective date

AUTHORITY: §§ 501.90 to 501.104, inclusive, issued under E.O. 8989, 6 F.R. 6725, and E.O. 9156, 7 F.R. 3349.

§501.90 *Definitions.* As used in this subpart:

(a) The term "commercial motor vehicle" means (1) (i) a straight truck, (ii) a combination truck-tractor and semitrailer, (iii) a full trailer, (iv) any combination thereof, or (v) any other rubber-tired vehicle, excluding a motorcycle, propelled or drawn by mechanical power and built (or rebuilt) primarily for the purpose of transporting property, and (2) any bus, taxicab, jitney, or other rubber-tired vehicle, propelled or drawn by mechanical power, used in the transportation of persons upon the highways, or available for public rental, including ambulances and hearses, but not including a private passenger automobile.

(b) The term "persons means an individual, partnership, corporation, association, joint-stock company, business trust, or other organized group of persons, and includes the United States or any agency, territory, or possession thereof, a state or any agency or political subdivision thereof, or any trustee, receiver, assignee, or personal representative.

(c) The term "property" means anything, except persons, capable of being transported by motor truck.

(d) The term "fleet" means three or more commercial motor vehicles owned or operated by one person.

(e) The term "private passenger automobile" means any motor vehicle built primarily for the purpose of transporting persons and having a rated seating capacity of 7 or less; and includes station wagons and suburban carry-alls, irrespective of seating capacity, which are not used in the transportation of persons or property for compensation.

§ 501.91 *Certificate of War Necessity Required.* On and after November 15, 1942 no person shall operate any commercial motor vehicle within the continental limits of the United States unless there is in force with respect to such commercial motor vehicle a Certificate of War Necessity issued by the Office of Defense Transportation governing such operation.

§ 501.92. *Application for Certificate.* Application for a Certificate of War Necessity shall be made in writing to the field office[1] of the Office of Defense Transportation for the area in which the home office or principal place of business of applicant is located, unless the applicant is directed to make application to some other office of the Office of Defense Transportation. Any such application shall be made on forms provided by the Office of Defense Transportation, and shall contain such information as the Office of Defense Transportation shall require.

§ 501.93 *Issuance of Certificate of War Necessity.* (a) A Certificate of War Necessity will be issued by the Office of Defense Transportation to any qualified applicant therefor, certifying, with respect to the operations covered by the application, limitations of mileage or of motor fuel or requirements as to loads or any one or more of such limitations or requirements, in order that such operations (1) shall be confined to those which are necessary to the war effort or to the maintenance of essential civilian economy, (2) shall be so conducted as to assure maximum utilization in such service of the commercial motor vehicle or vehicles of the applicant and (3) shall conserve and providently utilize rubber or rubber substitutes and other critical materials used in the manufacture, maintenance, and operation of such vehicles.

(b) In all original and subsequent certifications the Office of Defense Transportation will be guided by the provisions of its outstanding orders or public statements of policy relating to the operations under consideration, and all such outstanding orders and statements of policy will remain in full force and effect unless and until they are formally amended, superseded, or revoked.

(c) Such certificate, when issued in respect of a single commercial motor vehicle, shall at all times be carried on such vehicle. When such certificate is issued in respect of a fleet of commercial motor vehicles, a fleet unit certificate shall at all times be carried on each commercial motor vehicle covered by such fleet certificate.

§ 501.94 *Certificate of War Necessity Not Transferable.* No Certificate of War Necessity shall be transferable. In the event of the sale or other transfer of a commercial motor vehicle, or a substantial change in the character of its use or the condition under which it is used, the purchaser or transferee or owner thereof shall forthwith make application to the Office of Defense Transportation for a new certificate, upon the issuance of which the previously issued Certificate of War Necessity appertaining to such vehicle shall be surrendered for cancellation.

§ 501.95 *Contents and Conditions of Certificate.* Any Certificate of War Necessity issued under this subpart shall specify:

(a) The name and address of the person to whom issued;

(b) The vehicle or vehicles covered thereby;

(c) The purposes for which and the conditions under which such vehicle or vehicles may be operated;

(d) Such other terms or conditions as the Office of Defense Transportation may from time to time specify.

§ 501.96 *Motor Fuel and Commercial Motor Vehicle Parts, Tires, or Tubes.* On and after November 15, 1942, no person shall:

(a) Transfer any motor fuel to, or transfer, mount, or install any part, tire, or tube, in or upon any commercial motor vehicle, unless the operator thereof, at the time of such transfer or installation, shall present to such person for inspection a valid Certificate of War Necessity pertaining to such vehicle, issued by the Office of Defense Transportation.

(b) Transfer or deliver any motor fuel for the use of, or transfer, mount, install, or deliver any part, tire, or tube for the use of, any commercial motor vehicle, unless the operator of such commercial motor vehicle shall at the time thereof sign a written receipt, in duplicate, for such motor fuel, part, tire, or tube, and endorse on each copy of such receipt the number of the Certificate of War Necessity pertaining to the commercial motor vehicle or vehicles in or upon which such motor fuel, part, tire, or tube is to be used. In the event such transfer, delivery, or installation is for the use of a fleet of commercial motor vehicles, the number of the Certificate of War Necessity pertaining to such fleet shall be endorsed on each such written receipt. The original receipt shall be retained by the person making the transfer, delivery, or installation, and the copy shall be retained by the person operating the commercial motor vehicle. Such receipts shall be available for examination and inspection at all reasonable times by accredited representatives of the Office of Defense Transportation.

(c) The provisions of this section shall not apply to transfers or installations made pursuant to a coupon, certificate, or other instrument, authorized or issued by a rationing agency of the United States, or to the sale, transfer, or delivery of motor fuel, parts, tires, or tubes, to any person for the purpose of resale.

§ 501.97 *Inspection of Tires.* On and after November 15, 1942, no person shall operate any commercial motor vehicle, unless within the 60 days immediately preceding such operation, or, in the event such motor vehicle has been operated more than 5,000 miles during such period, unless within the 5,000 miles last operated by such vehicle, all tires mounted upon the wheels thereof of carried for use on such vehicle have been inspected by an inspection agency designated by the Office of Price Administration, and sary adjustments, repairs, retreading, recapping, unless such inspection agency has certified that such person has made all reasonable and neces replacement of parts or tires, and realignment of wheels, found by such inspection agency to be necessary to conserve and providently utilize such tires, unless such operator is unable, under then existing rationing regulations, to make such repairs, retreading, recapping, or replacement of parts, or tires.

§ 501.98 *Records and Reports.* Any person operating a commercial motor vehicle in respect of which a Certificate of War Necessity has been issued, shall prepare and permanently maintain in the manner and form prescribed by the Office of Defense Transportation records of all operations conducted by such vehicle. A weekly record of such operations shall be maintained in accordance with the form provided on the reverse side of such Certificate of War Necessity, and shall be carried at all times in such vehicle. Such person shall keep such other records and make such reports as may be required and in the manner and form prescribed by the Office of Defense Transportation. All such records shall be available for examination and inspection at all reasonable times by accredited representatives of the Office of Defense Transportation.

§ 501.99 *Enforcement Officers Authorized to Report Violations.* Any enforcement officer of any state or political subdivision thereof, who, on or after November 15, 1942, finds any commercial motor vehicle being operated which at such time does not have in such vehicle, available for inspection and examination, a valid Certificate of War Necessity issued under this subpart, or which is in any other way being operated in violation of any order of the Office of Defense Transportation, or any term or condition of a Certificate of War Necessity governing its operation, is authorized to make a report thereof to the Office of Defense Transportation, stating the name of the person operating such vehicle, the owner or lessee thereof, and such other information as the Office of Defense Transportation may specify. Such reports may be made on forms prescribed by the Office of Defense Transportation.

§ 501.100 *Suspension or Revocation of Certificate.* Any Certificate of War Necessity issued under this subpart shall be effective from the date specified therein and shall remain in effect according to its terms until amended, modified, recalled, suspended, cancelled, or revoked in whole or in part by the Director of Defense Transportation for good cause.

§ 501.101 *Control of Vehicles.* (a) Whenever the Office of Defense Transportation shall deem it to be advisable, any person having possession or control of any commercial motor vehicle shall, notwithstanding any contract, lease, or other commitment, express or implied, with respect to the use or operation of such commercial motor vehicle, cause such vehicle (1) to be operated in such manner, for such purpose, and between such points, as the Office of Defense Transportation shall from time to time direct, and (2) to be leased or rented by any such person to such person or persons, except by a person engaged in transporting property in a commercial motor vehicle for compensation to a person not engaged in such transportation, as the Office of Defense Transportation shall from time to time direct. Unless the interested parties agree upon the amount of compensation payable for the use of any such vehicle, so directed to be leased or rented, the amount of such compensation shall be such amount as may be determined by the Office of Defense Transportation to be just and equitable, subject to any applicable maximum price established by any competent governmental authority.

(b) The provisions of this section shall not be so constructed or applied as to require any person operating a commercial motor vehicle to perform any transportation service, the performance of which by it is not authorized or sanctioned by law.

§ 501.102 *Exemptions.* The provisions of this subpart shall not apply to or include the following:

(a) A commercial motor vehicle operated by or under the direction of the military or naval forces of the United States or state military forces organized pursuant to Section 61 of the National Defense Act, as amended;

(b) A commercial motor vehicle operated by a dealer exclusively for the purpose of selling such vehicle;

(c) A motor vehicle having a capacity of not to exceed 7 passengers operated by a person between his or her home and place of work and used in transporting other persons between their homes and their place of work, if such motor vehicle is not used for any other purpose for compensation.

§ 501.103 *Communications.* Communications concerning this subpart should be addressed to the Division of Motor Transport, Office of Defense Transportation, Washington, D. C., or to the field office of the Office of Defense Transportation designated for the area in which the home office or principal place of business of the correspondent is located. Such communications should refer to General Order ODT 21.

§ 501.104 *Effective Date.* Except as otherwise provided herein, this subpart shall become effective November 15, 1942, and shall remain in full force and effect until further order of the Office of Defense Transportation.

Issued at Washington, D. C., this 8th day of September, 1942.

JOSEPH B. EASTMAN,
Director of Defense Transportation.

[1] [A list of field offices appears on page 36. —ED.]

EDITORIAL

Fairness in Taxation

BY the time these words appear in print the Congress may have taken final action on the nation's taxation problem, which it steadily evaded until the President made the necessity of a decision clear. Any comments on the various proposals that have been made may, therefore, be somewhat belated, yet the tax problem has not been fairly stated nor have many of the proffered solutions been fairly conceived.

Most taxation proposals revolve about the principle of placing the burden on the other fellow. They are the products of an escapist attitude, of an unwillingness to pay one's own fair share—in itself a debatable question—and to place the burden elsewhere. Employers, for the most part represented by the large corporations, advocate plans which would place the weight of further taxation on workers and other persons of small incomes. Workers, represented largely by powerful labor unions, insist that the increases be taken from corporations which have large incomes. Those on whose shoulders rests the responsibility for giving the country a sound tax law procrastinate and becloud the issue because they either stand for certain groups which expect certain results or seek to win electoral approval by pleasing large groups.

The spokesmen of the employing group have been ardent in their advocacy of a sales tax and they have had the support of large newspapers and certain members of the Congress. Such a tax lies heaviest on those of small income because it affects every element in the cost of living and, therefore, leaves the workers and others in the low-income brackets no surplus of nontaxable income. It is pointed out by its advocates that more than seventy-five billion dollars of the total national income goes to this low-income group, but this statement is not complete unless it is shown also that these seventy-five billions are divided among more than one hundred million people, an average of less than $800 per capita. In their totality, people in this class—and they constitute at least a third of the population, according to government income data—receive a large share of the total but as individuals they live at or below the subsistence level. In order to pay taxes people of these low-income classes must give up food, clothing, shelter, or medical care to the extent necessary to meet their tax burden. Ten per cent of an $800 income, all of which is spent for actual and necessary living expenses, means to millions of people the difference between sufficient food and malnutrition, between adequacy and inadequacy in clothing, living quarters, and necessary sanitation. There is no luxury problem among persons having subsistence or subsubsistence incomes.

Those who plead for higher taxes on corporation profits point to the huge gains made by some large corporations and the large numbers of executives receiving salaries in excess of $75,000 annually. They conveniently ignore the fact that such profits and salaries are exceptional and do not reflect even relatively the conditions that prevail throughout business generally. Even when this truth is brought to their attention they reply that taxes on profits do not bring employers down to the subsistence level of individual living, that they apply only to the surpluses that remain after corporate "cost-of-living" has been adequately covered. They allege that taxes should be levied on those who are able to pay them and that excess profits are evidence of the ability to pay.

Between such sharply conflicting opinions, fortified on one side or the other by the presentation of selected and all-too-meager facts, it is difficult to find a middle ground of truth, a point from which a fair plan can be formulated. In such a situation the people have reason to look to the taxation experts of the Treasury Department, men who do not share all the prejudices of either of the two groups whose positions have just been summarized and who are not subject to either the heavy taxes that are being levied on corporations or the sacrifice of the simplest living standards which would be forced upon the lowest-income groups if the latter's burdens were to be increased.

THE Secretary of the Treasury has proposed a plan which has brought forth all the criticism that can be expected to be aimed at a suggestion possessing novelty and ruthlessness. It has been described by some of the proponents of a sales tax as "theoretical", "unworkable", "unconscionable" and "incomprehensible". Yet, through its proposed spending tax on all individual expenditures above certain levels (which takes account of the differences between the cost-of-living standards of various income groups), its allowable deduction of war-bond purchases and other savings (which may obviate the necessity for compulsory savings), and its elimination of normal rates on 1942 taxes (which would lighten the burden involved in trying to pay a heavy year's taxes out of a light year's income), it provides means for raising the revenue required for the successful conduct of the war. It would take the money where it can be found, it would possibly have the same effect as compulsory saving, it would discourage spending and in that way provide an additional check on inflation, it would be progressive in its application, and it would approach more nearly to fairness by taxing most heavily those best able to pay. On the negative side some will complain that the plan does not remove the loopholes of the existing tax scheme—such as the opportunity given corporations to select the method of computing their tax liability that imposes the least burden on them—but no proposal can be expected to escape criticism.

The plan that the Congress will adopt will probably be one that will take the sting out of the criticism likely to be heard from all sides but will fall short of providing the money needed and of the ideal of getting it where it is available in the largest amounts.

A general view, showing some of the new gravel-processing equipment.

Connecticut Plant Speeds Operations by Installation of Modern Machinery

NEW conveying, screening and washing equipment at the gravel pit, new screening equipment at the quarry, new truck equipment in the shop—these are some of the answers the Sherman Sand & Stone Company of New Britain, Connecticut has made to war-time demands for a greatly increased volume of its products.

The company, which has been in business since 1912, does business within a trading area extending for a radius of some 20 miles around New Britain. It has extensive property holdings containing sand, gravel and stone for future use, and has already worked out several gravel pits. The pit and quarry now being worked were both opened in 1927. In 1930 a ready-mixed plant was installed.

A rapidly increasing demand for all the company's products made it necessary to consider ways and means of stepping up production in all departments. The plant at the gravel pit was capable of producing 35 to 40 tons per hour, with a 60 to 70-ton output desired. The quarry plant had been already stepped up from its original capacity of 45 tons per hour to about 60 tons per hour, but an output of 70 to 80 tons per hour, including a larger proportion of intermediate and small sizes, was desired.

The gravel plant consisted originally of revolving screens, fed by a bucket-elevator, and although they had been replaced by vibrating screens, the capacity of 35 to 40 tons per hour was by no means sufficient.

One of the first steps the company took was to purchase a 20-B Bucyrus-Erie gasoline-powered shovel, equipped with a ¾-cubic yard dipper to assure an adequate supply of raw material from the pit. To haul this material to the plant hopper 2 Ford trucks were purchased and equipped with a 4½-ton Gar Wood rear-dump bodies.

The old plant was abandoned and a new plant, designed by the Iowa Manufacturing Company, was erected. Operations start with the removal of the overburden which, at the present portion of the pit being worked, is only about 18 inches thick. It is shoveled off by the shovel and loaded into the trucks. Some of it is sold as fill, and the remainder is used to fill in a swampy depression on the company's property near the pit.

Raw material for the plant, as well as for customers who wish to purchase bank-run gravel, is excavated as needed by the same shovel. Material for the plant is hauled a distance of 300 to 400 feet to the plant hopper.

By SPENCER JONES

The trucks back up a gentle ramp and dump their loads through a bar grizzly into an 8- by 8-foot charging hopper of 10-cubic yard capacity. Material rejected by the grizzly, which has 4-inch clear openings between ½- by 4-inch steel bars set vertically, is so small in amount that it is wasted and no crusher is used at the plant.

Beneath the plant hopper is a 24-inch apron-feeder, chain-driven off the tail shaft of a 24-inch by 50-foot rubber-belt feed conveyor. The latter is driven by a 7½-horsepower General Electric motor which operates at 1,200 r.p.m. and imparts a speed of about 325 f.p.m. to the feed conveyor through V-belts and a chain.

The conveyor discharges on a Cedar Rapids horizontal 3- by 12-foot double-deck vibrating screen, across the top of which are 9 spray bars. The vibrating screen is driven with a 7½-horsepower General Electric motor operating at 1,800 r.p.m. and transmitting its power through V-belts.

Water for the spray bars, as well as for the rest of the plant, is supplied through a 5-inch Swaby centrifugal pump, direct connected to a 20-horsepower Westinghouse motor, and handling 450 g.p.m. from a near pond on the company's property.

At the time the operation was visited only the upper deck of the Cedar Rapids screen was being used. This deck had a ¼-inch square wire-mesh screen, although screen sizes as small as ⅛-inch are sometimes used, depending on the production requirements.

The oversize from the upper deck is discharged on a 14-inch by 80-foot belt-conveyor, powered by a 5-horsepower General Electric motor which rates at 1,200 r.p.m. and provides a belt speed of about 250 f.p.m. through a V-belt drive. This conveyor feeds a 3-by 8-foot double-deck Allis-Chalmers Aero-Vibe vibrating screen, driven by a 3-horsepower Allis-Chalmers motor through V-belts. The upper deck has 1¼-inch square wire mesh, while the lower deck is open, as in the case of the sand-removing horizontal vibrating screen. The oversize from the upper deck falls into a 60-cubic-yard steel mixed-gravel bin; the undersize from the upper deck falls into a 60-cubic-yard steel ¾-inch gravel bin.

The undersize from the ¼-inch square wire mesh of the upper deck of the Cedar Rapids screen falls into a hopper beneath and is discharged from the latter into a sand-drag, or drag-scraper, tank. The drag is driven by a 15-horsepower General Electric gear-head motor and a chain and sprockets. The wash water overflows into a launder and runs down into a pond,

The stone crushing and screening plant.

which is connected in a meandering manner with the pond from which the centrifugal pump obtains its water.

Sand, dragged by the flights up the sloping end of the tank, is discharged on an 18-inch by 120-foot belt-conveyor, which is driven at about 250 f.p.m. by a 10-horsepower General Electric motor, rotating at 1,200 r.p.m., through V-belts. The upper end of the conveyor extends several feet beyond and above the sand bins across which it travels, and feeds a stock-pile of sand at the end of the bins. The steel supporting framework of the bins is planked for a distance of several feet above the ground level to keep the sand of the stock-pile from encroaching on the driveway beneath the bins.

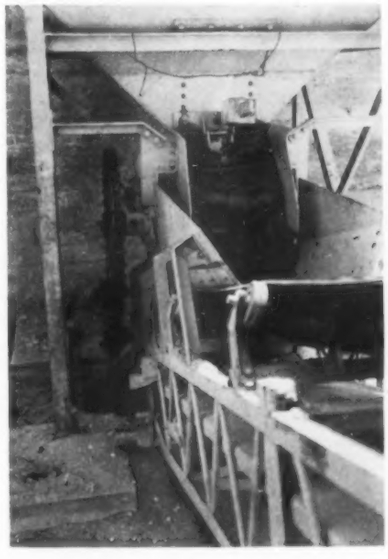
Sand is discharged into either of two 60-cubic-yard sand bins by means of two deflectors, one over each sand bin. Trucks load beneath the bins.

Rehandling the material from the stock-piles is done with a GA-2 Bucyrus - Erie gasoline - powered crane with a 50-foot boom and a 1-cubic yard clam-shell bucket.

Prepared sizes and bank run gravel are weighed out with Fairbanks 20-ton truck scales and trucked away.

Delivery from the plant to the ready-mixed plant and to sand-and-gravel customers is handled with a fleet of 13-rear-dump trucks, consisting of 9 Macks, 1 White, 1 GMC and 2 Fords, whose capacities range from 4½ tons to 9 tons.

The stone deposit of the Sherman company is in seamy trap rock, with a developed face which varies in height from 25 to 70 feet. The overburden, which is seldom more than 2 feet deep, is stripped off with a 41-B Bucyrus-Erie 1¼-cubic yard steam shovel (also used for loading at the quarry face), and is hauled away by two Model AK Mack trucks with 5-cubic yard Heil



Apron feeder beneath charging hopper at pit plant.

rear-dump bodies (also used for hauling rock from the quarry to the primary crusher). All the overburden is sold for fill.

Blast-hole drilling is done with an Ingersoll-Rand wagon-drill. Detachable bits are used on 1½-inch round steel stems. The starting sizes of drill holes for primary blasting are 2⅝ inches. Primary blast holes average 22 feet in depth, with bottom diameters of 2 inches.

The bits make about 4 feet of primary blast hole before they must be sent away for resharpening. After an average of three resharpenings they are discarded.

About three 22-foot primary blast

Electric-powered crane breaking stone in quarry with "skull-cracker."

holes are drilled in 8 hours, including the time required for changing the stems and bits.

Air at 100 p.s.i. pressure for the wagon-drill, and for the Worthington and Ingersoll-Rand jackhammers used to drill secondary blast holes is supplied by an Ingersoll-Rand XCB-2 stationary compressor of 569 c.f.m. capacity, driven by a 100-horsepower Fairbanks-Morse motor.

The trap rock is not only seamy but tough, has a specific gravity of

Another pit-plant view showing conveyors to bins.

2.96, and is located rather close to residences and business buildings. Because of this combination of circumstances, the company has found that it is better to use many blast holes and a relatively light load in each hole.

A total of 25 to 30 vertical blast holes, drilled in two staggered rows 7 feet to 8 feet apart and 7 feet to 16 feet back from the quarry face, is combined with an equal number of gently sloping snakeholes which start about 2 feet above the quarry floor and dip so that they are below the level of the floor at the far end. These snakeholes are only 3½ to 4 feet apart, and extend 7 to 16 feet into the quarry face. Such combinations of vertical and snake-holes are rather common in the trap-rock quarries of New England.

Each vertical and horizontal primary blast hole is sprung, or chambered, with two sticks of 60-per cent. Hercules dynamite. The chambered holes are then loaded with 1¼- by 8-inch cartridges of 60-per cent. Hercules dynamite, a No. 6 Hercules cap being place in the second or third cartridge from the bottom of each hole. From 2,600 to 3,500 pounds of dynamite will be used to load 60 holes, depending on conditions.

Shovel loading a truck in the pit.

Rock screenings are used for stemming, and all 60 holes are wired with a variable series-parallel hook-up and shot at once with a 100-hole blasting battery. From 8,000 to 10,000 tons of rock is brought down per blast.

Due to the seaminess of the rock, the fragmentation resulting from primary blasting is not all that could be desired. But there is actually less secondary drilling and blasting than at the average trap-rock quarry because the greater part of the rocks that are too large for the primary crusher to handle are broken down with a "skull-cracker" dropped from the end of the 45-foot boom of a Marion Type 21 electrically-powered crane.

Rock for the primary crusher is loaded at the quarry face with the steam shovel already mentioned and is hauled in the Mack trucks a distance of 800 to 1,000 feet.

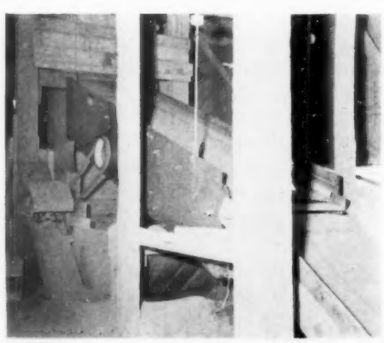
The primary crusher is a 16-inch Allis-Chalmers gyratory which is driven by a 100-horsepower Fairbanks-Morse motor through eleven 1½-inch V-belts.

Crushed material falls into the boot of a 26-inch by 55-foot belt-bucket primary elevator, the buckets of which are 12 by 17¾ by 24 inches. This elevator, made by the Good Roads Machinery Company, travels at a speed of 151 f.p.m. and

Another view of the loading bins, conveyors and screen at end of gravel belt.

is driven from a line shaft by a 23-horsepower Fairbanks-Morse motor.

This motor also drives a 60-inch by 10-foot Allis-Chalmers rotary scalping screen into which the primary elevator discharges. This screen—due to be replaced by a vibrating screen — has 2⅝-inch square openings and revolves at a speed of about 15 r.p.m. The oversize falls into a 6-inch Allis-Chalmers McCully fine-reduction secondary crusher which is belt-driven by a 50-horsepower Fairbanks-Morse motor, and the crushed material is



Double-deck screen in the quarry plant.

chuted back to the boot of the primary belt-bucket elevator. The undersize, passing through the 2⅝-inch square openings, is chuted into the 18- by 12- by 8½-inch buckets of a Good Roads 20-inch by 50-foot belt bucket elevator, which is driven at 130-f.p.m. by a Fairbanks-Morse 20-horsepower motor. This elevator discharges into a hopper at the top of the screening building.

At this point the material was formerly fed into a 60-inch by a 10-foot revolving screen, but this has recently been replaced by an

Allis-Chalmers unit. The new screen is a 4- by 14-foot double-deck Ripl-Flo vibrator driven through V-belts by a 5-horsepower Allis-Chalmers motor. The upper deck has 1⅜-inch square wire mesh, and the oversize rejected by it passes by chute into either of two 100-ton 2-inch stone bins.

The undersize, passing through the upper deck but rejected by the ⅞-inch mesh of the lower deck, is chuted into a 100-ton 1¼-inch stone bin. The undersize passing through the lower deck went, formerly, to a 4- by 5-foot double-deck Hum-mer.

Because of a need for intermediate sizes, material which has passed through the ⅞-mesh screen on the lower deck is now fed on a recently-installed 3- by 8-foot Allis-Chalmers Aero-Vibe double-deck vibrating screen, powered by a 3-horsepower Allis-Chalmers motor through a

New 3-cubic yard ready-mixed-concrete truck.

V-belt drive. The upper deck of this screen has ⅝-inch square wire mesh, and the oversize is chuted into a 100-ton ¾-inch stone bin. Material passing through the upper deck, but rejected by the $\frac{5}{16}$-inch square mesh of the lower deck, goes into a 100-ton ½-inch stone bin. The undersize which has passed through the lower deck, goes to the previously-mentioned double-deck Hum-mer.

The upper deck of the Hum-mer has a $\frac{3}{16}$-inch square wire mesh screen, vibrating at 1,800 oscillations per minute. The oversize rejected by this upper deck falls into a 35-ton ¼-inch stone bin. The undersize is classed as screenings and goes to a 100-ton screenings bin. At present there is no screen in the lower deck of the Hum-mer.

The demand for smaller sizes is so large that the company has re-

Electric-welding outfit mounted on a truck.

cently added recrushing equipment. This consists of a 24-inch belt-conveyor extending along the outside of the screening building from a chute beneath one of the 100-ton 2-inch stone bins and carrying 2-inch stone up a gentle slope to an Allis-Chalmers Model 626 Type R reduction crusher. The conveyor is driven through V-belts by a 7½-horsepower General Electric motor, and the crusher is driven through V-belts by a 75-horsepower Allis-Chalmers motor. The reduction crusher is placed above the boot of the 26-inch by 55-foot belt-bucket elevator into the boot of which the recrushed ma-

This is the ready-mixed-concrete plant. Crane is shown loading the bins.

Operator at batching levers on the concrete plant.

terial is chuted for another trip through the sizing plant.

Stock-piling at the quarry is done with a B-2 Bucyrus-Erie ⅞-cubic yard steam shovel, which also loads out-going trucks with material for the ready-mixed plant, for recrushing, or for delivery to customers when necessary.

Hauling between the plants and of sand, gravel and stone to customers is done with the fleet of 13 dump trucks previously mentioned.

An extremely useful piece of equipment, recently purchased by the company, is an MR-300-S stationary 12 KW Hobart welder with automatic motor with 220- or 440-volt alternating current. The welder has a range of from 50 to 400 amperes and is mounted on a Ford pick-up truck for quick transportation to wherever its services are needed.

The ready-mixed plant, located close to the company's main office within the city limits of New Britain, is an Erie Aggremeter plant. It has a capacity of 30 to 35 cubic yards per hour. The aggregates, hauled from pit or quarry by the company's fleet of trucks, are stock-piled and fed thence to the plant's three 60-ton aggregate bins by a Model 1030 Bucyrus-Erie crane which swings a ¾-cubic yard Hayward clam-shell bucket from the end of its 45-foot boom.

Portland cement, now delivered in bags but shortly to be received in bulk on a railroad siding to be built, is at present emptied out of the bags and dumped into the boot of a Haiss chain-bucket elevator which takes it to a 60-bag cement bin at

F. C. Stocks, president and general manager, at his desk.

the top of the ready-mixed plant.

The aggregate is batch-weighed with a triple-beam scale which has one beam for each type of aggregate—one 9,100-pound beam and two 4,100-pound beams. Cement is batch-weighed with a 3,000-pound single-beam Buffalo scale. Water is measured by a Neptune meter. In winter a steam hose is used to heat the water and the aggregates.

Delivery of ready-mixed concrete is made with a fleet of 8 trucks. The company's entire fleet comprises 27 trucks.

The company operates its own truck-repair shop and garage under the direction of John Nicolucci. A welding shop and a machine shop, directed by Ralph D. Carter, are available for repair work.

The officers of the Sherman Sand & Stone Company are F. C. Stocks, president, treasurer and general manager; R. H. Sherman, vice-president; and F. V. Mumson, secretary and assistant treasurer. John Milanese is quarry foreman and David Paulson his assistant. Robert J. Anderson is pit foreman, and Richard E. Anderson his assistant. Joseph Krom is foreman of the concrete-mixing plant. The main offices of the company are located at 614 West Main Street, New Britain.

Phosphate-Rock Sales Up; Production Off

According to reports of producers to the Bureau of Mines, mine production of phosphate rock in the first half of 1942 was slightly lower than in the similar period of 1941. However, that sold or used in the first half of 1942 was 2,227,313 long tons, or 129,519 tons greater than in the corresponding period of 1941, and the value, $7,672,938, was nearly a million dollars greater.

The average value of phosphate rock sold or used increased from $3.21 in the first half of 1941 to $3.44 in the corresponding period of 1942. Total stocks in producers' hands declined slightly but Florida was the only state showing a decrease. Domestic consumption, which can not be shown because of a lack of export and import data, is known to have been greater than during the first half of 1941.

Because of wartime restrictions no data on phosphate rock imports and exports for the first six months of 1942 are available.

In the first half of 1942, phosphate rock was mined in Florida, Tennessee, Idaho, and Montana, and apatite in Virginia. Florida, as usual, was the leading shipper, although shipments of hard rock, land pebble, and soft rock all decreased. The average values of all types increased, resulting in total values of land pebble and soft phosphate sold or used somewhat greater than in the first six months of 1941. However, the decline in the quantity of hard rock sold or used was so great—from 10,092 tons in January to June, 1941, to 3,200 tons in the similar period of 1942—that the total value was very much less in the latter period although the average value was much higher. The quantity of Tennessee rock, including a small tonnage of apatite from Virginia, sold or used in the first half of 1942, was very much greater than in the corresponding period of 1941. Increases were likewise recorded in both average and total values. In Montana and Idaho both the quantity and average value of phosphate rock sold or used in the first six months of 1942 were higher than in the January to June period of 1941.

Prices of Tennessee brown rock of the highest grade (74-75 per cent.) ranged between $6.00 and $6.50. Top-grade (76-77 per cent.) hard Florida pebble rock was $5.00 on most sales.

Long rail incline from Anderson phosphate mine to bins near Garrison, Montana. This property is now being worked by the Montana Phosphate Products Company. Bins and short incline from lower portal at right.

Strict Rules Govern Use of Explosives

Rigid instructions regarding the storage, handling and transportation of explosives by the more than 145,000 persons licensed under the Federal Explosives Act for the two-fold purpose of preventing sabotage through use of explosives, and preventing disasters involving explosives, particularly in coal and metal mines and quarries, on construction jobs, and on other projects participating in the war program.

Anyone violating the instructions may have his Federal license revoked, be refused a renewal of his license or may be prosecuted under the Act and thus be subject to a fine of not more than $5,000 or imprisonment for not more than one year or both fine and imprisonment.

The new instructions provide that explosives must be stored in "substantially-constructed and securely-locked buildings or in suitable containers" and that they must be protected at all times against theft, loss or unauthorized use. Specific instructions also are given for construction or various types of explosives-storage magazines.

Twin Portables Produce 400,000 Tons in Six Months on Nantahala Dam Job

By PHILIP A. KLINE
Job Engineer, Utah Construction Company

South end of spillway and impervious borrow pits showing crusher site and filter-zone stock-piles.

OVER 400,000 tons of crushed rock was prepared in six months by two crushing-and-screening assemblies operating as a combined processing plant during the construction of a large rock-fill dam in North Carolina. None of the equipment had been so assembled before, and the operating personnel was drawn from the ranks of the general contractor's forces; yet time was most essential to get the plant quickly up to operating efficiency and to fit in its production with the other dam-building activities. The following summary of the field engineer's report describes the equipment used, how it fitted into the job to be done, the operating problems that were encountered, and the production rates obtained.

The material to be crushed came from large quarry operations and from tunnel-driving excavation. These sources were part of the whole construction project undertaken by the Utah Construction Company for the Nantahala Power & Light Company, a subsidiary of the Aluminum Company of America. The products of the plants went into temporary surge piles or were hauled direct to form part of a 250-foot-high mass of quarry-run rock and impervious material which made the storage dam on the Nantahala River. A general description of the project was given in the February, 1942, issue of PIT AND QUARRY which discussed a portable plant that was used on other features of the development and later became part of the final production set-up under discussion.

The specific material needed from the combined crushing plant consisted of about equal amounts of 10-inch to 3-inch cobbles, 3-inch to ½-inch intermediate rock, and two grades of minus-½-inch sand. These were used in the dam on the upstream and downstream sides of an impervious clay "seal," extending from clean solid foundations to within a few feet of the top of the heavy rock fill.

Additional mass was given to the structure by some 2,000,000 cubic yards of quarry-run rock blankets which were controlled by selective loading and placing. As the dam was built from its canyon base, each zone of particular material, widened out considerably on the abutment slopes. Such an arrangement of different-sized rock layers required balanced production in the quarry, steady and carefully-proportioned crushing-plant output, and a constantly changing picture of haul roads and equipment available. Placement of all the material in the dam was carried on 24 hours a day, weather allowing, which made it necessary that the rock-producing plant be ready with its output and that it continue to provide each size needed through the intense construction program. While storage of the crusher products was desirable and often possible, it was the general rule that the plant produced the stone at approximately the same rate as that at which it was used.

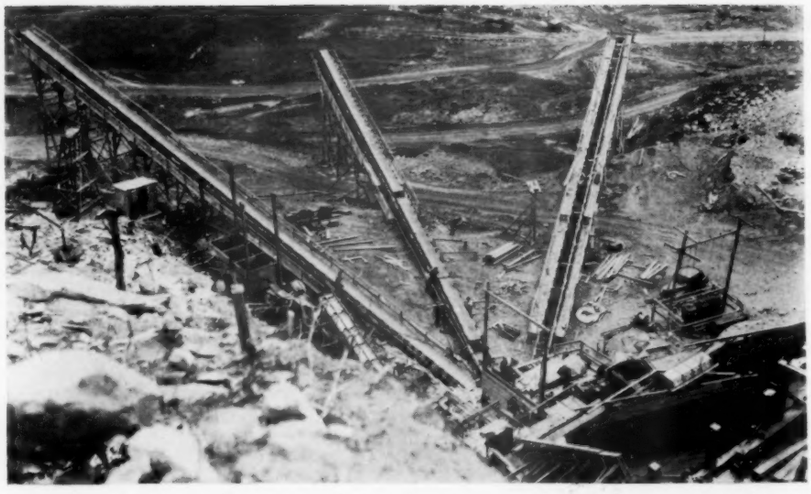
The two sets of equipment used were set up side by side on a bench prepared on a hillside near the dam and quarry. Rock from the quarry or from the tunnel work, could thus be delivered to either crusher. Cross conveyors and chutes allowed selection of various sizes from the screen-

Crushed rock from the plants was placed from the solid rock base against quarry-run blankets.

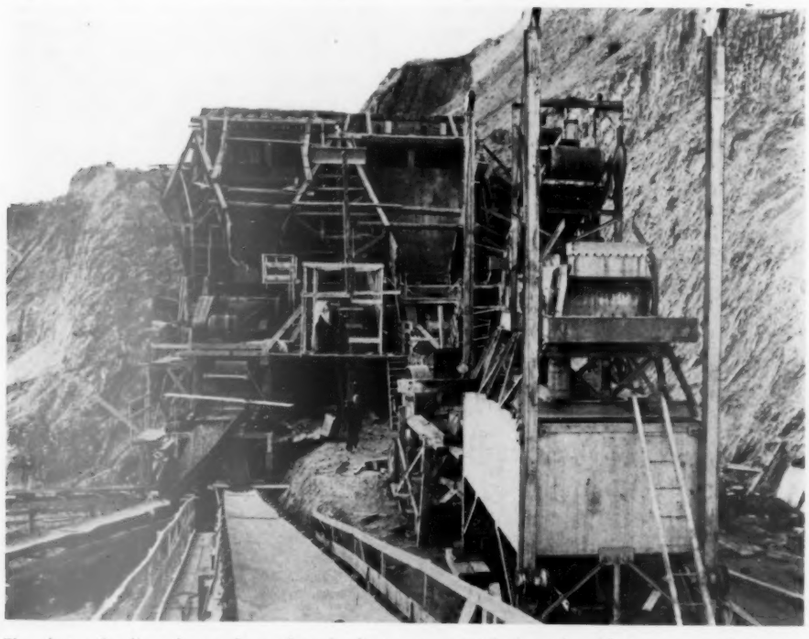
ing units. This also made possible flexibility of operation and repair attention to either plant. In the beginning and at the end of the production periods it was also possible to operate only a single plant, thereby saving operating expense by the lighter demand then experienced.

A heavy duty Kennedy Van-Saun 30- by 48-inch jaw crusher was secured from a previous job. It was powered by a Crocker Wheeler 150-horsepower motor operating at 875 r.p.m. from a 2,200-372-volt Cutler-Hammer control board. The rock was fed to the crusher from steel-lined bin-chutes sloping to a Barber-Greene chain-belt feeder. The crusher discharged on a Link Belt 42-inch-wide belt-conveyor which in turn fed a Robins 60- by 120-inch "Gyrex" Style 11 two-deck vibrating screen powered by a 625-r.p.m., 15-horsepower motor.

A similar sloping bin fed a complete new Cedar Rapids portable rock plant. As described in the previous issue of PIT AND QUARRY, it was used to make road material and concrete aggregates in various areas of the construction development, and was then moved in place alongside



Three conveyors on timber structures branched out over rapidly receding ground to 10-inch 3-inch and ½-inch stock-piles.



The chutes feeding the crushers of each plant were set side by side. The screens and bins to the right have not yet been raised to position.

of the other plant. Essential units comprising this plant were a 42-inch by 10-foot feeder and a 25- by 40-inch jaw crusher mounted on 12 heavy-duty pneumatic tires and an air-brake-controlled chassis. Conveyors and screens circulated and sorted the primary-crusher product through a secondary 10-inch by 36-inch jaw crusher and/or 40- by 20-inch sand rolls. The latter two units were also mounted on a rubber-tired chassis similar to the primary outfit. The Robins screen scalped 10-inch to 3-inch material, selected 3-inch to ½-inch intermediate rock, and passed all the sand below ½ inch in size. The screens and chutes were altered according to changing requirements but they never delivered larger than 3-inch to ½-inch material to the stock-piles. This plant could deposit 3-inch material or sand to the final conveyors or could store some of its useful product in its own 3-compartment bin, where the material could be discharged into trucks and hauled direct to the dam.

Three main conveyors collected the majority of the combined-plants output and carried it to stock-piles. All the conveyor flights were built on timber framework over a rapidly receding hillside. This allowed fairly high stock-piles and easy grades on the loaded belts. Pioneer idlers, drives, pulleys, and take-ups were used on the three 200-foot long flights. Cobbles and intermediate rock were carried on 36-inch belts, and the sand and cross conveyor used 24-inch-wide belts. The stock-piles were equipped with reclaiming gates and log-walled compartments called "traps." These structures were capable of accommodating the hauling equipment being used, and were fed by gravity flow of bulldozer tractors pushing the material to the center of the roof containing the gate.

Later additional equipment was added to balance production by increasing the output of the smaller

The crusher and supplementary units were installed to take advantage of gravity flow.

sizes of rock. Two Link-Belt 72-inch cone-type sand washers were installed in a new arrangement of the main sand conveyor flight. Also, a rented Telsmith 13-B rotary crusher was placed in service. This crusher

CRUSHER PRODUCTION (in cubic yards), JULY 23 TO SEPTEMBER 22

Period Producing	Production (Cubic Yards)					Hours Run Per Day	
	Size 10-Inch	Size 3-Inch	Sand	Totals	Per Hour	Portable Plant	Stationary Plant
July 23–30	8,819	5,273	8,181	22,273	165	15	15
Aug. 1– 7	6,457	8,786	5,380	20,623	180	21	14
Aug. 8–14	4,864	4,575	4,008	12,447	151	15	12
Aug. 15–21	3,502	6,974	7,331	17,807	214	6	13
Aug. 22–31	5,941	8,747	9,165	23,853	232	13	8
Sept. 1– 8	6,079	9,955	9,681	25,715	202	15	12
Sept. 8–15	5,393	9,792	11,054	26,239	272	16	13
Sept. 16–22	5,416	10,721	8,340	24,477	336	18	9
Period Total Averages	46,471	64,823	63,140	174,434	219	16	12

was powered by a 40-horsepower motor operating at 560 r.p.m. It received its feed from a job-made belt take-off deflector installed on the center conveyor which carried 10-inch stone from the Robins screen. The discharge from the Telsmith crusher was carried by a 24-inch by 60-foot steel-lattice-frame conveyor to the intermediate-rock stock-pile. This arrangement operated only during the last two months of the job, when the majority of the larger-size crushed rock had been placed and when the requirements for the 3-inch to ½-inch size rock were greater than the stock-piles or daily output of the combined plants could provide.

The rock crushed was one of the hardest of sandstones, bordering on quartzite, and was found in the quarry in a blocky formation of bedding planes and joints. Rock from the tunnel was excellent crusher feed but was abrasive on the wearing parts. However, it was in sizes easily handled by the smaller (Cedar Rapids) primary plant and resulted in clean sharp sand and intermediate rock. Much of this sand was kept segregated from the quarry rock. However, this tunnel supply was limited and this required careful coördination with all the other operations to provide such a product when it was most needed in the dam.

Conveyor drive on auxiliary timber framing. Note the take-up tied down. This was later corrected to a gravity action.

Due to the quantity of material needed for the blanket sections of the dam and the resulting large quarry operations that required heavy shooting and shovel and truck equipment, it was not always possible to serve the crushers with the most suitable feed. This necessitated maximum operating efficiency on the part of the crusher crews, and of the plant. At first the plants were scheduled to run 16 hours a day, 6 full days a week. Later this schedule was raised to 24-hour production. Three skilled operators and four laborers comprised the usual shift of operating personnel and were employed full time, taking advantage of outside delays to repair, maintain, and adjust the operating mechanism.

By adding a small gyratory crusher to feed off the center conveyor, more 3-inch material was by-passed to the stock-pile on the left.

During the entire operations the combined plants crushed a total of 320,000 cubic yards of material, averaging 145.44 yards per plant operating hour. However, at times they did much better than that figure. During one week the plant rate was 283.9 cubic yards per hour. The weekly production during peak weekly periods is shown in the accompanying table.

Delays on both the crushing plants were caused more by repairs than by any other factor of scheduled operating time, in one case being 27 per cent. and 19 per cent. in the other. These circumstances were under constant watchfulness as will be discussed later. Other causes for delays were "No Muck" (5 per cent.), or lack of crusher feed (5 per cent. and 10 per cent., respectively), barring and shooting rock or handling oversize rock delivered to the crusher feed bins (1 per cent. and 5 per cent., respectively), and other miscellaneous delays to make up a total for the two plants of 34 per cent. and 41 per cent., respectively.

Considerable thought and attention were given the plant in order to enable it to meet its schedule. One conveyor drive was improved by reducing the size of the head and tail pulleys. Most take-ups were revised to secure more belt surface on the take-up pulley to prevent occasional

(Continued on page 50)

Conveyor supports were cantilevered out over three high stock-piles sloping down to truck-size recovery compartments. The large flat pile in background is waste.

GETTING THE MOST FROM YOUR CONVEYOR BELTING AND OTHER RUBBER EQUIPMENT

NINETY per cent. of our crude-rubber supply is in the hands of the enemy and 7 per cent. additional is in jeopardy (Africa, India and Ceylon). We are left with a sure supply of only 3 per cent. of our normal needs, to say nothing of our tremendously-expanded needs for military and naval equipment.

Synthetic-rubber plants are being built, but completion of the major portion of these is not expected before the end of 1943. Even then, their entire production will hardly satisfy war needs.[1]

The critical rubber shortage has caused increasingly-restrictive measures to be ordered by the War Production Board, the latest of which further restricts the crude content of mechanical rubber goods, such as belt, hose, and other kindred industrial rubber supplies. (Amendment Number 9, July 21, 1942, to WPB Rubber Order M-15-B-1).

Therefore it is becoming increasingly necessary for the pit-and-quarry industry to institute a program of industrial-rubber conservation among those who are responsible for the proper installation, inspection, and repair of the rubber products being used.

Complete manuals on the subject of industrial rubber conservation are now available for the first time in the history of the mechanical-rubber-goods industry. It would be good to procure one of these manuals for ready reference.

The pit and quarry industry is confronted with certain *specific* needs for rubber conservation based on observation made in various plants. Space will not allow a discussion of all these needs, but some of the most important ones are covered below.

Dredges

Sand Suction Hose.—Give the hose a one-quarter turn at regular intervals to distribute the wear evenly on the tube.

Do not allow the hose to support the rigging at the intake end. By the same token, do not allow the dredge to swing and put undue stress on the hose. The maximum permissible radius of curvature should be ascertained from the hose manufacture. Then this radius should never be exceeded.

Rubber Pump Liners.—Never make any change in pump characteristics without first consulting the rubber-liner manufacturer as to the effect this change will have on the wear of the liners.

Dredge Sleeve.—A ¼- by ½-inch oval bead of metal back 3 inches from the toe end of the dredge pipe will be helpful in holding the sleeve by means of clamps still farther back. The ends of the pipe should be turned down on a radius to prevent damage to the sleeve tube in deflecting.

Give the sleeves a one-quarter turn at regular intervals to distribute the tube wear evenly.

Follow the manufacturer's recommended maximum deflection of the sleeves and do not exceed it.

Quarry

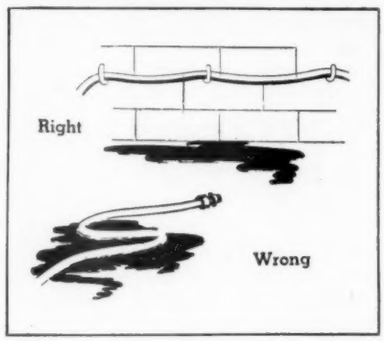
All Pressure Hose.—Protect hose from flying stone at blasting time. Do not allow stone to fall on the hose, or trucks or other equipment to run over it.

Do not attempt to pull hose around sharp corners or bend it sharply at the couplings.

Consult the hose manufacturer for the proper fitting recommendations. In applying this fitting to the

hose use a soap solution as a lubricant. Never use oil or grease. Check the manufacturer for the proper fitting shank diameter for a given hose. Never try to force a hose end over a shank too large, or attempt to cut the hose tube away to make it fit. The hose cover should never be removed to make use of a "too small" hose clamp. Hose shanks, or nipples, should be given a radius at the end to prevent damage to the hose tube in bending. It is good to have the hose clamp extend back in the hose slightly beyond the end of the shank in many instances.

Always drain a hose when not in use. Hang it up on a rack in such



a manner as to allow it to drain properly and to keep its cover free from oil and grease.

Procure the proper hose for its intended use and adopt an easy identification system suitable to plant needs if various types of hose of approximately the same diameter are used for different purposes.

Preparation Plant

Flat Transmission Belt.—Conservation of transmission belting can be accomplished easily if the following simple installation precautions are followed:

If the belt is for a new drive, a check with the manufacturer should be made to ascertain its suitability, unless that fact has been established previously.

If the previous belt failed prematurely, and no recognized abuse has been established, the manufacturer should be consulted before the replacement belt is applied.

Endless belts should be used wherever the application allows.

In the event that open belts are used, the mechanical-fastened manufacturer's recommendations should be carefully observed in the fastener selection. (These are usually contained in mill-supply jobber catalogs).

Open belts should be cut squarely, and 1/8 inch per foot shorter than the actual steel tape measurement. In some instances where the belt is

By W. D. BRADSHAW
Assistant Manager, Belt Sales, Goodyear Tire & Rubber Company

[1]See recent press releases by the War Production Board.

likely to operate under very wet conditions, 1/16 inch per foot initially, and another 1/16 inch as soon as the belt stretches would be better.

If a floating idler is used and any slipping develops, the idler should be raised by extension of the center distance, or shortening of the belt, as the case may be, to increase the resultant tension even though no additional dead weight be added to the idler. An increase of idler weight will accomplish the same purpose, but will increase the idler-bearing pressure. *Caution:* Do not add more than just enough tension to prevent slippage.

Care should be taken with new belts to see that they are "broken-in" without injury to them or the equipment. The ideal tension for a belt is just enough to pull the "peak" load without slipping. This amount can be ascertained by trial and error. A decrease of 10 per cent. in tension will increase belt flex life 60 per cent. of its former value. It is important not to add more tension than necessary to pull the load.

Pulley diameters and faces should be those recommended by the belt manufacturer.

During their installation belts should not be forced on the pulleys by means of pries. Belts have been ruined by this practice before they have made one revolution around the pulleys. This is particularly true of belts of many plies.

Belts should be at least 1 inch and preferably 2 inches narrower than the pulley faces to prevent possible damage to the belts from "weaving" over against supports or other obstructions.

Drives should be designed to run with the slack side of the belt on the top if possible. Vertical drives should be avoided wherever possible.

Regular close inspection of flat transmission belting pays high dividends in terms of added belt life.

Such common abuses as edge wear, belt slip, oil contamination, too abundant use of belt dressing, together with flex abuses, should be promptly and properly diagnosed and remedied.

Conveyor Belts.—A conveyor belt may be seriously injured during its installation or immediately thereafter, if the following precautions are not observed:

1. Correct alinement of idlers, terminal pulleys, and parallelism of shafts is essential.

2. Always roll a crated belt in the direction indicated in the crate.

3. Mount the belt in a suitable spindle for threading onto the conveyor rolls.

4. Never drop a belt from a conveyance. It is better to skid, roll or lift it off.

5. If necessary to reef the belt preparatory to its installation, avoid too small loops and keep excessive weight off them.

6. Side guide idlers are suggested to aid in the initial training of the belt, but self-alining idlers should be used later if any training idlers are found to be needed permanently.

7. Crowned tail and take-up pulleys are recommended for aid in training the belt.

8. Keep the return roll clean to prevent edge wear of the belt.

9. Install cleaning devices, if necessary, under the head pulley. Some sticky material will require the use of water jets as well as scrapers.

10. A forward tilt of the return idlers, an amount not in excess of 2 degrees will aid in the initial training of a belt.

11. The following approximate clearances and conditions are suggested as good practice:

(a) The vertical distance between the bottom of the discharge pulley and the top run of the succeeding belt—should be 2 feet.

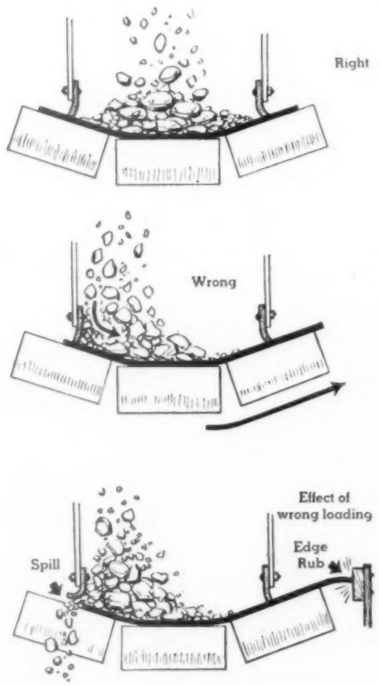
(b) Overlap—6 to 10 feet.

(c) The distance from the center of the last idler to the center of the discharge pulley—should be 1¼ to 1¾ times the belt width.

(d) At least one troughing roll should precede the chute.

(e) Decking should be installed between belt runs.

(f) Scrapers at an angle should be placed just ahead of the tail pulley.



(g) The bottom of the tail pulley should clear the ground by not less than 2 feet to allow cleaning.

(h) The steel structure of the chute or skirts should never be placed closer to the surface of the belt than 2 inches, this distance being made to increase in the direction of travel of the belt.

12. The belt should be loaded in such a manner that the material will pass from the chute to the belt *at the same speed and in the same direction of travel* as the belt with the *minimum amount of impact.*

13. Since impact is a very critical factor, rubber-covered or, better yet, pneumatic idlers are recommended at loading points where severe impact is a problem.

14. The use of a grizzly, a slightly fanned row of bars, at the bottom of the chute reduces wear on the belt by allowing the fines to fall on the belt first to act as a cushion for heavier material.

15. If lumps are mixed into a high percentage of fines, the chute width should be 3½ times the size of uniform lumps, but if material is graded for size, this width can be reduced to twice the lump size.

16. A further aid to centering the belt as it approaches the tail pulley can be obtained by advancing and raising alternate ends of the return roll nearest the tail pulley.

17. Vulcanized splices are recommended wherever possible.

18. Cover and carcass repairs should be made as soon as possible after belt accidents occur. Consult your belt supplier for further information on this subject.

Conveyor belts should be carefully inspected at regular intervals and, most particularly, immediately after installation—the most hazardous period in the life of a belt. Every belt injury, if examined closely, will indicate its cause. Careful inspection of equipment will reveal this cause.

Here are some points to observe in conveyor-belt operation:

Don't allow pulley lagging bolt heads to damage the belt.

Reduce and cushion the impact to prevent breaking the belt carcass.

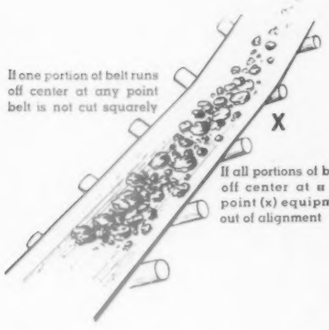
Keep material from getting between belt and tail pulley, and punching holes in the belt.

Apply only enough tension to pull the load.

A mildew-inhibited cotton carcass should be used in all cases.

Keep the belt trained to prevent edge wear, edge breaks, and spillage.

If one portion of the belt runs off center at any point, the belt is not cut squarely. If all portions of the


If one portion of belt runs off center at any point belt is not cut squarely
X
If all portions of belt run off center at a given point (x) equipment is out of alignment

belt run off center at a given point, equipment is out of alinement.

Consult your belt supplier for a recommendation as to the belt most suitable for the service intended.

Prevent cover stripping by eliminating chute "plugs," material trapping between the skirt and the belt, tramp iron, interference, dragging pointed objects, and too high relative velocity of material coming onto the belt.

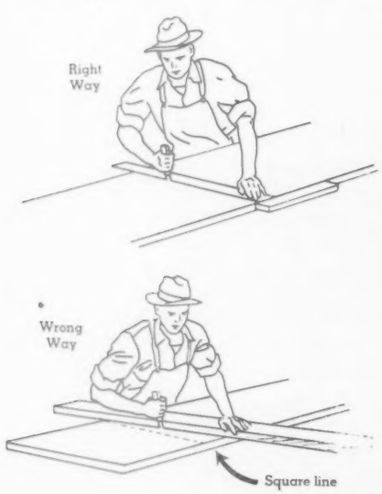
Prevent excessive top-cover wear by keeping the return rolls and space underneath the tail clean.

Prevent excessive pulley cover wear by keeping the troughing idlers and pulleys clean by preventing spillage of fine material onto the return run, slippage from insufficient belt tension, too much tilt on the troughing idlers, sticking idlers, or by keeping lagging in good state of repairs.

Keep oil away from the belt. Do not over-lubricate the bearings.

If the belt is mechanically fastened, inspect the fasteners frequently and repair them, if necessary. This is important.

Atmospheric elements have very little effect on conveyor-belt operation in the temperate zone. Terminal pulleys crusted with ice should be cleaned and freed prior to operation. Snow should be cleared from the terminal pulleys before starting the conveyor.



Elevator Belt.—The same general rules are to be observed in the installation, inspection, and repair of elevator belts as with conveyor and transmission belts. The following precaution pertaining only to elevator belts should be observed:

(a) Cemented bucket bolt holes on belts used under wet conditions are desirable.

(b) Avoid more than just enough tension on the foot pulley to make the belt pull without slippage. Provide the proper clearance for the slack return side to accomplish this.

(c) Inspect the bucket bolts frequently, and replace any that may have become loose or broken.

(d) The boot should be kept clean at all times.

(e) The buckets should be at least 1 inch narrower than the belt and, preferably, 2 inches.

(f) Vulcanized splices should be used wherever possible.

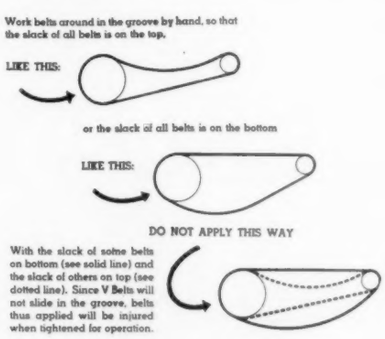
V-Belts.—Before applying a new set of V-belts the following points should be checked:

The condition of the sheave grooves, the sheave alinement, and the parallelism of the shafts.

The belts should be of the proper cross-section for the grooves.

Ample (5 per cent.) take-up should be available.

Belts should be installed in a slack position with the slack of all the


Work belts around in the groove by hand, so that the slack of all belts is on the top.
LIKE THIS:
or the slack of all belts is on the bottom
LIKE THIS:
DO NOT APPLY THIS WAY
With the slack of some belts on bottom (see solid line) and the slack of others on top (see dotted line). Since V Belts will not slide in the groove, belts thus applied will be injured when tightened for operation.

belts either on one side or the other, and then tightened just enough to pull the load—no more. After the running-in period the belts should be tightened to the above tension.

Old belts should never be run with new belts. Save the old belts until a full set is accumulated and then use them on lighter service, if possible.

See that added loads are not put on jack-shaft drives after the original installation is made, unless a check-up of belt capacity reveals that the additional load will not cause it to be exceeded.

Key the sheaves firmly to prevent possible sheave wear.

All the guards should be well ventilated to avoid excessive heat. Keep the belts away from steam pipes for the same reason.

A lack of lubrication of the bearings adjacent to the sheaves will cause them to heat and damage the belts, while surplus oil is likely to creep on the sheave to contaminate belts.

The belts should always be used in matched sets.

Belt dressing should never be used on V-belts.

All industrial-rubber supplies, such as hose and belts, should be stored in a cool dry place out of direct contact with sunlight.

If these conservation measures are taken in the pit and quarry industry, the contemplated serious shortage of industrial rubber supplies will be considerably alleviated, thus aiding in greater production—the industry's contribution to the war effort.

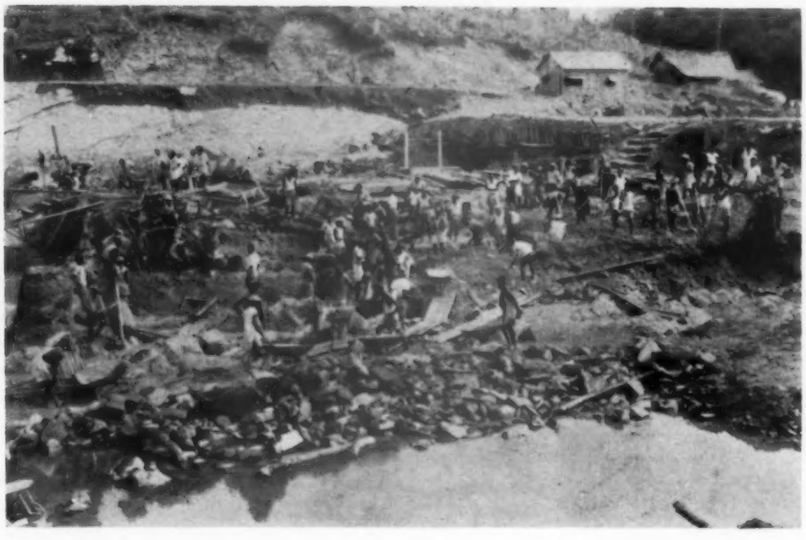
Nantahala *(from page 47)*

slipping. Self-alining idlers were installed to correct the belt troughing and return idlers getting out of position due to the settlement of the timber supporting bents and carrying stringers. Rubber-covered idlers were provided to cushion the shock of rock being discharged on the belts from the crusher and screen chutes. The chutes were corrected for angle and material as feed conditions indicated and as replacement of linings were necessary. Among other alterations and improvements were the conversion of the cross conveyors to enable them to handle the installation of the washer cones, and the rearrangement of the screens and chutes to secure the kind of rock most needed in the dam. Lubrication and inspection schedules, safety measures, and friendly shift competition were set up for the operators' guidance.

Upon completion of the processing requirements the plants were dismantled, overhauled and stored in the company's equipment yard on the job. Not long after it was possible to adapt some of the motors to other uses, and to design and utilize some of the conveyor system for an unusual concrete-placing arrangement.

G. R. Putnam was general superintendent for the contractor and S. E. Bittner was resident engineer for the owner. The field report was prepared by Harry T. Graham, field engineer for the contractor.

American Engineer Tells Problems of Producing Aggregates in African Bush



Scores of native boys busy at work stripping dirt and loose stones from river bed before drilling operations were begun.

PRODUCTION of rock for 30,000 cubic yards of concrete for a hydroelectric plant in the African bush presented problems unique to the engineer accustomed to facilities of civilization. A few years ago engineers of the Firestone Plantations Company discovered the falls of the Farmington River. Conveniently, they were located within two miles of the southern boundary of their rubber plantation at Harbel, Liberia. The company, of necessity, started the construction of a

By F. H. EDWARDS, Jr.
Firestone Plantations Company

hydroelectric plant at this site in February, 1940.

Built to supply the power needs, both industrial and domestic, of a rubber plantation, this hydroelectric station was limited in size to the ultimate requirements of the plantation. Relatively little is known of the river or its hydraulic characteristics, so the design of the hydraulic structure presupposed river conditions far in excess of those observed in the few years it has been open to the white man. The design also called for careful balance between the limited skill of native operators and the unsatisfactory performance of automatic equipment in the humid climate of the locality.

An overflow type dam, approximately 1,000 feet long and located just downstream from a gorge, directs the flow through an intake containing two fixed orifices into a channel, one side of which is a spillway, thence through a radial gate into an earth canal approximately three-quarters of a mile long. At the end of the canal a forebay structure directs the water into individual penstocks for each unit, only one of which is installed at present. This unit consists of a vertical Francis type turbine driving a 3-phase, 60-cycle, 750-kilowatt generator which develops electric energy at 2,400 volts. Transformers step up this voltage to 13,200 for transmission.

Aside from the location of the plant and of the necessity of employing the unskilled labor for all the construction operations, the only unusual feature of the plant is the fixed-orifice intake and side-channel spillway to reduce the probable variation of 16 feet in water surface at the dam to approximately 3 feet in the canal. This reduction was necessary to avoid excessively-high fills and deep cuts in the earth sections of the canal.

The preliminary surveys were made the previous year. These were accomplished after hazardous as well as tedious months of work. The area to be surveyed was a very dense jungle or bush, being populated by deadly snakes and, reportedly, by leopards and bush cows or water buffalo. A native was gored by a bush cow while this work was in progress. Six years before this time this same area had been a breeding ground for elephants. A roadway two miles long had to be cut through the jungle that the survey party might reach the site of the project. Later bridges were built over the streams and a road constructed over this same route. Vegetation grows so fast that the land cleared while the surveys were being made had to be cleared again.

A trophy of the hunt. Natives bring in a freshly-killed spotted leopard.

A general view showing the concrete plant, left, and aggregates plant, right.

In six months time it had grown to be 7 or 8 feet high. A road abandoned for a year is obliterated by the growth of bush.

About the first operation to be started was the constructing of the concrete-aggregate-producing plant. This is located on the land set aside for the power project, about half way between the dam and the power-house. The concrete mixing-and-batching plant is also situated adjacent to the aggregate plant, so forming a centrally located production unit. In addition it was estimated that enough rock would have to be excavated from foundations for the power-house, forebay, canal, intake and dam that developing a quarry would not be necessary.

It might be well to explain the methods previously used for excavating as well as reducing and sizing the rock for use as aggregate. Until the time plans were being made for the construction of the power project, all the stone was drilled by means of one jackhammer and the air supplied by one 105-cubic foot portable compressor. Very little secondary drilling or blasting was done. Instead, the rock was broken by hand with sledge hammers or, when hammers were not available, a pile of wood was placed on the tops of the rocks to be broken and was then ignited. This operation was generally carried out during the night time. In the morning these rocks were sledged again or cracked by means of water thrown over them. This manner of breaking rock was far too slow to keep up

Native drillers in action.

with the planned excavation and concreting schedules. The crusher in use at this time could not produce the required tonnages because, in addition to the slow feeding system, it was not large enough. Although labor is plentiful as well as cheap, hiring more natives than were being used wouldn't increase production. It was, therefore, necessary to purchase new and larger equipment that could be operated by and with the native labor.

Crushing-and-screening plant before roof was placed on. Note wheelbarrows on ramp for carrying stone to crusher.

Local laborers had to be trained to do their various tasks by the staff members of this project. Time and patience were necessary to accomplish this, for they were not familiar with equipment such as was purchased and a job such as this was beyond their understanding. Each new machine required at least one native to operate or work with it, and you might say that there was hardly a job that could be done without some training. Common laborers' work was no exception to this lack of training. A system of labor had, in the past, been set up by the company. All the work in connection with the producing of latex, maintenance and the moving of earth must be done in the following manner: A gang must consist of from 25 to 35 natives with one native head man in charge, one native overseer being responsible for 4 head men to his superintendent. One reason for this arrangement is that the head man and overseers generally understand English and can translate orders into the native tongues. The workers come from many tribes, each speaking a different dialect.

Stripping the rock to be excavated and quarried was accomplished by means of hand labor. Most of this work was necessary at the power-house and forebay sites and at the various canal rock cuts. Comparatively little stripping was necessary at the site of the dam. In one place an earth cut 40 feet deep, 80 feet wide and 300 feet long was made that rock foundations might be excavated. Wheelbarrows are used to haul the dirt from the cuts.

For the drilling operation the following additional equipment was purchased: Three 105-cubic foot compressors and one 315-cubic foot compressor, all portable, 8 jackhammers and 1 wagon-drill. As there was a stock of spare parts available for the original compressor and jackhammer, the new ones were of the same type and make to offset an additional cost of spares for another. In addition, the portable type was believed to be more advantageous because of the number of different places to be excavated and because this type would be practical for use on the plantation.

The wagon-drill is used primarily for sinking grout holes in the rock over which the concrete foundations are to be placed. In addition "snake holes" are drilled in some of the deeper side-hill rock cuts. Most of the rock to be excavated doesn't exceed 7 or 8 feet in depth, so a great percentage of the drilling was done by means of the jackhammers. Threaded drill rods and demountable jackbits are used in drilling with the jackhammers and the wagon-drill. Two electric bit sharpeners are being used to sharpen and gauge the jackbits. Different types of bits were tested in the field that the best might be standardized. It is impossible to get one native to operate a jackhammer alone. Generally they want to work in pairs, one on each side or one on each handle. They accomplish much more working in this manner. Possibly the reason for this desire to work in pairs might be attributed to the fact that in general the average native will not

weigh over 120 pounds or stand more than 5 feet 6 inches.

All dynamite and blasting caps used up till 1939 were purchased from British concerns rather than American. The reason for this was that transportation costs between Liberia and England were less than those between Liberia and the United States. After the war started this market was closed and another had to be located. The war brought about a high transportation cost from all overseas markets and also closed all but a few. A comparison of costs now opened the American markets. Gelatin dynamite of 60 per cent. strength and electric blasting caps were purchased. Two blasting machines of a size sufficient to explode 50 blasting caps each were used to do all blasting.

The rock, after being excavated, is loaded by hand into 1½-ton dump trucks and delivered to a storage pile at the crushing plant. At this place all the rock not previously broken small enough is sledged to a size in which it can be fed into the crusher.

Much time was spent in designing a plant and in purchasing the equipment for it. The latter had to meet many requirements. First, the equipment had to be capable of producing enough stone for a peak capacity of 150 cubic yards of concrete a day; secondly, each piece of equipment had to be limited to 5 tons in weight or be capable of being dismantled to a maximum of 5 tons for each section; thirdly be of a usable size to supply crushed stone for the later use of the plantation.

The first requirement was easily met by all manufacturers. The second was necessitated by limitation in handling and transportation facilities between the dock in New York and actual erection in Liberia. The third was important because it was considered impractical to have on hand after the completion of the project larger equipment than was necessary. The plantation couldn't foresee requiring only large quantities of crushed stone unless an extensive construction program was contemplated.

The plant now consists of a primary crusher of the gyratory type with a feed opening 8 inches wide by 8-inches long (figuring both openings; an intercone crusher for the secondary stage; a 14-inch rubber belt-bucket elevator and a 36-inch rotary screen 10 feet long. The latter is made up of two sizes of screen sections, the first section having ½-inch square openings and the second 1½-inch square openings. A jacket with ¼-inch square openings completes the make-up of the screen. All the necessary shafting, pulleys, belting and, in addition, all hardware, nails, lumber and timbers necessary to build the plant had to be imported or purchased with the other equipment.

It might be interesting to note that although there is a tremendous number of trees suitable for being made into lumber and timbers there isn't a saw-mill in this country for doing this work. Saw-mills, under present conditions, have not proved successful to operate, partly because there is no way to transport heavy logs to the mills because of the soft ground and the nature of the jungle and partly lack of equipment to do this hauling.

The stone to be crushed is hand-loaded from the stock-pile into wheelbarrows and transported by this means to the primary crusher. After being crushed the stone is discharged into the belt-bucket elevator and so carried to the screen for sizing. Stone passing through the screen is mixed and used as an aggregate for concrete, and stone passing through the jacket screen is screened by hand to remove the fines, those passing through a number 14-mesh. The hand method proving to be inadequate, a 2- by 4-foot electric vibrating screen was purchased to speed this operation. The screens product, the minus-¼-inch plus 14-mesh, needed to be added to the available sand in a proportion to make up a deficiency. The fines passing through the 14-mesh were used for tamping blast holes and on the various roads on the job. The tailings are chuted to the secondary crusher which reduces all the stone to a maximum of 1 inch. The circuit is completed with this stone being discharged into the elevator.

Arrangement for feeding stone from bins to conveyor.

The problem of power to run the plant was temporarily met by converted automobile engines of the type used for transportation on the plantation. This was done to eliminate the cost of spare parts for another type of engine. Both these engines in trial runs proved to be lacking in power and also to be operating at too high a temperature because of the extreme heat and the

A gang of natives at work loading stone into trucks. In the foreground an overseer is checking up on the time each man has worked.

overload. However, a water cooler was devised and built and proved very successful. This consisted of a concrete tank base of 300-gallon capacity with a wooden superstructure cooler. Both engines were piped to the same system and a 30-g.p.m. centrifical pump was driven by one engine to force the water from them to the top of the cooler. The water temperature in the tank averaged about 150 degrees F. most of the time while operating. Although the operating temperature had been corrected, the engines were still over-loaded. Rather than purchase larger ones with additional spares, electric motors for power were considered after a year's run. During this time a power line from the plantation had been installed. Deciding that an all-electric plant would be the best solution, since there were spare motors of sufficient size on hand, the decision was carried out. Since this installation operating time has not been interrupted by a power shortage.

The bins are built on a side hill with the ground acting as the floor, the stone passing by means of a closed chute and gate directly to a 14-inch conveyor belt. This system delivers the aggregates into a 3-bin compartment aggremeter. Originally storing stone, or a system for doing this, was not contemplated, but the necessity for one was soon realized. A bin of 50-cubic yard capacity was constructed alongside the Aggremeter and filled by means of a system of chutes at the conveyor's extremity. This bin was built so as to enable trucks to drive underneath for loading in the conventional manner. From here the stone is trucked to a storage pile or to the locations of various jobs.

The nearest source of suitable sand for concrete was found at Port Marshall, located at the mouth of the Farmington River. This is beach sand and is about 17 miles from the project. Gangs of natives hand-load the sand into containers, such as 5-gallon gasoline tins, or pails, and then carry these loads on their heads to the company lighters of 30-ton capacity. The latter are used also in unloading and loading steamers carrying freight to and from foreign countries.

When the lighters are loaded they proceed 12 miles up the river to the plantation. The lighters are not designed to be unloaded by means of a clam-shell, so they are unloaded by hand. However, a derrick at the waterside lifts the hand-loaded skiffs, dumping the sand into trucks or on a stock-pile. Trucks haul the sand the last 5 miles to the project.

The quarrying, crushing and sizing of the stone do not all come under the supervision of one member of the staff. For instance, it is one member's duty to excavate all the earth from the various sites, thus stripping. Drilling and blasting the stone and then loading it into trucks to be carried to the plant is another man's task. Then, finally, the crushing and sizing of the stone for an aggregate are another's. It is nearly an impossibility to compute a labor cost for the finished product because these combined staff members have 1,000 natives or more, collectively, working for them. However, this system has proved successful in that the anticipated work has been accomplished at a favorable cost.

The plant now is producing about 15 tons of stone an hour, enough to make the desired amounts of concrete. In the future, if so desired, its capacity may be increased with a few changes.

More Research in Lime Needed

By "ONLOOKER"

The lime industry as a whole is a busy one these days, as all those who are associated with it will attest. War-time needs have taxed production facilities and have brought with them a new responsibility.

Higher labor and material costs have had their effect upon mill prices, bringing about partial evening-up of market prices that has been sorely needed, but they are not yet stabilized to the point necessary for effective merchandising of a product so necessary to our successful war effort.

It is incumbent upon all lime producers to watch this feature of their business more than ever now if the full measure of their potential capacity is to be obtained. Increased demand for lime products, especially in the chemical and industrial fields, will be a yardstick, if we will allow it to be so, for determining absolute basic costs on a volume basis, burning characteristics; fuel ratios and quality maintenance, such as we may never before have had.

There is a definite sphere of usefulness for both calcium and magnesium limes in industrial applications, each type of lime being peculiarly adapted for certain needs. An example, while not new, but of current interest, is the use of the dolomitic lime for conversion into magnesium metal. This use at a critical time adds to the potential possibilities of the lime industry as a whole. The constant search for strategic metals of all kinds from domestic sources is evidence of paramount interest. It is important at this time to quarry operators as it may open fields to them otherwise unexplored.

Priorities placed on construction work where lime has found an outlet, coupled with the displacement of lime by competitive products in this field, bids fair to worry numerous operators, who have depended upon the building field as a major market. If the trend is any criterion, it means a shrinking market for building lime which may never be recovered.

It is for this reason that constant effort should be expended by the individual managements and collectively through association activities to foster the continued use of lime where lime is best suited for the purpose by making known its qualities and thereby save to the industry as much of this type of business as remains available.

While production remains high and it is financially possible to do so, research should play a large part in present-day activities of every lime producer. On every front the doctrine of research is stressed as a vital "must" and the results of long-range research are daily in evidence. This is only true to a minor degree in the lime industry as such research as is conducted is confined to a comparatively few enterprising operators.

The lime business can well be called a "chemical industry" and as we progress technologically there is no reason why our individual operators can not alter their plans to incorporate not only the manufacture and sale of their products, but also other by-products in which lime is a basic constituent. By so doing, it will elevate the industry to an even higher plane of usefulness and place it rightfully among other important industrial enterprises. When this war is won and we are again doing "business as usual" it is to be hoped that foresight will have taken the place of hindsight and wishful thinking, because we are definitely approaching the frontier of a new era of social and economic enterprise in which research will have taken a large part. Business will be conducted, but it appears to be a foregone conclusion that it will not be "as usual." It will be in a new tempo, keyed to new methods, new processes.

Diesel-driven portable crushing plant, part of the Overgaard operations.

Wisconsin Road Builder Making Specialty of Limestone "Fines"

ADAPTABILITY to changing conditions is said to be one of the prime requisites for survival. It also seems to be important in business, especially in the business of producing crushed stone. Take A. Overgaard of Cambridge, Wisconsin, as an example. He started out as a road contractor 15 years ago, producing his own material with portable plants. In 1930 business began to slacken in this line so he began to produce agricultural limestone from a quarry near Cambridge. In 1934 he moved the hammermills and other equipment to the present quarry, which is located 5 miles east of Elroy, Wisconsin, and is leased from Juneau County. This was operated with W.P.A. labor until 1940. Then he installed in this quarry the crushing section of one of the two 2-section Universal Crusher Company portable plants used for construction work and a permanent screening set-up. The same arrangement, with some improvements, is now used. In March, 1940 Mr. Overgaard put in operation on this property a fine-grinding plant which is one of the best in the state.

The deposit is a hard limestone which passes all tests for concrete aggregates. Its analysis of 98.5 per cent. calcium-carbonate equivalent also makes it suitable for agricultural limestone. The magnesium-oxide content of 20.32 per cent. is said to be higher than that of most limestones in this area and it contains 29.26 per cent. of calcium oxide. Because the 25-foot ledge of stone nearest the surface is best suited for agricultural limestone and concrete aggregate the quarry is being worked in two levels. The 30-foot lower level is used only for road rock for oiled roads, etc. Below this is sandstone. The overburden is from 5 to 8 feet in depth and this is removed in off seasons with the quarry equipment.

Most of the drilling is done with a Cleveland wagon-drill and jack-hammers are used when necessary. Air is supplied by a Gardner-Denver portable compressor. Another portable Gardner-Denver compressor, driven by a General Motors Diesel engine, is used for road jobs.

The stone is loaded by a Model 407 General ¾-cubic yard shovel which is powered by an 82-horsepower Cummins Diesel engine. Two Sterling trucks haul 5- to 6-cubic yard loads a distance of about 400 feet to the crushing plant. Only one truck is needed except when crushed stone is being produced exclusively.

The stone is dumped from the trucks on a Chain-Belt pan-feeder ahead of the 15- by 36-inch Universal primary jaw crusher. The minus-3-inch product is discharged on a 24-inch by 50-foot Northern Conveyor Company portable belt-conveyor from which the wheels have been removed. This feeds a 3- by 8-foot Simplicity 2-deck screen equipped with $\frac{7}{16}$-inch and 8-mesh wire cloth. The oversize is chuted to a Gruendler 3x hammer-mill and a short 18-inch belt-conveyor feeds its product back to the first conveyor.

The material passing through the bottom of the screen is "raw lime" or agricultural limestone which meets both Federal and local specifications. The company has the contract for Juneau County and several adjoining counties. The output of this material is about 20 tons per

This view shows the entire crushing-and-screening operation. The Diesel engine on the truck at left drives the hammermill.

Diesel-powered shovel loading a truck on second level in the quarry.

Finely pulverized product is made in this 4-roller high-side mill.

hour. It is loaded into trucks from a 30-ton bin which is to be replaced by one of 70 tons capacity.

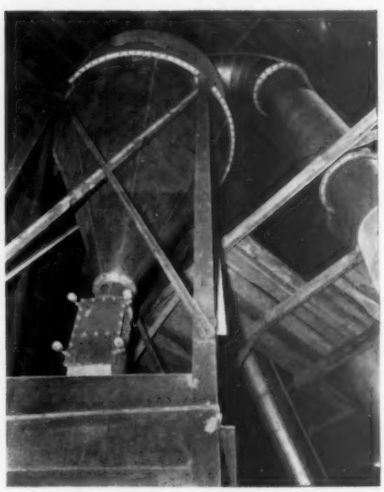
The primary crusher and all the conveyors are driven by a Caterpillar 8800 Diesel engine. An International UD18 Diesel engine, rated at 100 horsepower and mounted on a truck chassis, drives the hammermill. The screen is driven by a Model A Ford gasoline engine.

The material coming off the bottom deck of the screen is "chips" which are stored in a 10-ton bin. These are used for a seal coat for bituminous pavements and for making finer pulverized products. The output of chips is about 7 tons per hour.

The chips are hauled in trucks to the new pulverizing plant where they are discharged into a 30-ton hopper. A 36-foot Wisconsin portable conveyor, driven by a LeRoi gasoline engine, discharges this material into a 1½-cubic yard feed bin over the Raymond Number 5047 high-side, 4-roller kiln mill. This machine is equipped with an 8-foot-diameter cyclone, twin 3½-foot concentrator collectors, a Number RF24 exhaust fan, and a vent fan. It is connected to a coal-fired hot air furnace which maintains a temperature of 750-degrees F. at the mill's hot-air inlet. A special regulator indicates the degree of efficiency with which the mill is operating and another indicator the rate of feed.

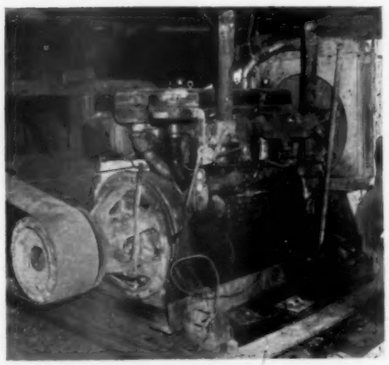
The finished product drops from the cyclone to a St. Regis 2-spout bag packer by which paper bags of 100-pound capacity and old cloth cement bags holding 80 pounds each are filled. Customers are given allowances for cloth bags returned within 30 days. The warehouse has a capacity of 450 tons of bagged material. All the equipment in this pulverizing plant is driven from a 175-horsepower Wisconsin gasoline engine.

This plant has an average capac-



Eight-foot cyclone with trap door through which product drops into packer bin.

Oversize stone is reduced to size in this hammermill.



All pulverizing-plant equipment is driven by this 175-horsepower gasoline engine.

ity of 5 tons per hour of feeding lime which is ground to a fineness of 99.5 per cent. through 100-mesh, 93 per cent. through 200-mesh, and 76.0 per cent. through 300-mesh. The output of agricultural limestone is from 7 to 8 tons per hour and in size it averages 95, 82 and 65 per cent., respectively, through the same openings. These plants are operated as described during the liming seasons—October to December and March to May inclusive. Some concrete aggregate is also produced during these periods. During the off-season periods only road stone is produced from the lower ledge in the quarry. For such production the primary crusher is moved to the edge of the quarry near a highway and one of the complete 2-unit Universal portable plants is used. The second unit has a 40-inch roll-crusher and a 3- by 8-foot 2-deck vibrating screen. The two sections of this plant are mounted on a total of 36 tires. Its capacity is from 800 to 900 cubic yards of 1-inch road stone in an 8-hour day. Deliveries of all the products are made mainly within a radius of 40 miles in hired trucks.

NISA Board to Meet Nov. 20 in New York

The semi-annual meeting of the Board of Directors of the National Industrial Sand Association will be held at the Hotel New Yorker, New York City, on Friday, November 20. Pursuant to the traditional policy of the association, all member companies are invited to be represented at the meeting.

Glenn Rippey has been appointed district engineer in charge of the Oklahoma City office of the Portland Cement Association.

He joined the association in 1925 and for the last ten years has been a field engineer in northeastern Oklahoma with headquarters in Tulsa.

Suspended Flume Over River Solves a Vexing Problem for Kansas Producer

Suspended flume crossing the river.

IN producing sand and gravel at our plant on the Kansas River in North Topeka the matter of "holding the channel" and disposing of the fine sand presented a knotty problem.

For a number of years the Kansas River was at a low stage. Because of this condition and the fact that our plant was of the stationary type, we experienced great trouble in washing away the fines when they were deposited on the downstream side of our screening plant.

The Kansas, like many other commercial-sand-producing streams, carries a large amount of fine sand for which there is little or no market. In an ordinary year and with average contracts between 30 and 50 per cent. of the sand coming into the plant will, of necessity, be returned to the river.

As every operator who has had experience in this type of sanding operation well knows, the bar formed from this excess sand which is returned to the river will result in one of two things:

1. The sand barge and equipment will have to be moved to a new channel which will be cut because of the bar formed on the downstream side of the screening plant, or

2. The plant must be operated with the extreme hazard of having a bar form under the dredge.

In the case of a stationary plant the power cost mounts when the pumping head is increased by a longer discharge line. Also, the territory where the dredge may work is reduced because of the forming bar.

If the excess fines are allowed to bar, additional pontoons will be required. Here the danger from flood is greatly increased as the number of pontoons is increased, and the pontoon line is lengthened.

In 1937 I designed and constructed a suspended flume to carry the excess fine sand to the side of the river opposite our stationary plant. While we were not faced with the necessity of an immediate correction, our bar was giving us trouble and it was only a question of time until we would have to move or suspend operations.

By M. M. SMALL
Victory Sand & Stone Company

The new suspended flume which we built reached to a point approximately 400 feet out over the river. It is amply suspended by two 1½-inch wire cables, 19 wires to the strand, 6 strands to the cable. Two towers, 940 feet apart, support the flume. The parent tower is of steel and is 53 feet high. The tower across the river is of timber and 25 feet high. If these were being constructed to-day, I would make them both of timber because of the shortage of metal.

A block and tackle are used to raise the flume out of flood danger in case of extremely high water. On each side of the cable there is a double and triple block. These are permanent and are threaded with the pull-line extending back to the spools. When the flumes need adjusting, the pull-line is removed from the reels attached to the separate trucks and tightened or slackened, according to the level of the river.

This work must usually be done in a hurry and under unfavorable conditions, and the ease with which the rope can be handled is an important factor.

The guide ropes are fastened to triangular concrete anchors. The bases of these anchors face the towers. The anchors are placed 6 feet below the water-level and on the angle of the cable running to them.

They are fastened on the under side to concrete deadmen. Extending to the water-line concrete posts 8 inches in diameter are placed on 2-foot centers, with the reinforcement bars extending from the main body of the deadmen through the full length of the posts. This procedure greatly increased the holding capacity of the deadmen without increasing the amount of concrete.

The head block on the steel tower next the plant has an axle extending through the sheaves for each cable. By using this method, when it is necessary to raise or lower the flume, the friction is reduced to the minimum at the center of the hardest pull for the cables.

Fines were returned to the river in this manner before the suspended flume was built.

The supporting cables have spacer bars with U-bolts to keep the hanger cables separated and at the proper distance for the even distribution of the load. In order to hold the hanger cables in place, they are fastened around the supporting cables above the spacer bars.

To equalize the load on the supporting cable every other pair of hanger cables is crossed. This is necessary because the load of water and waste material does not pass through the flume evenly, but moves from one side to the other.

When the stationary flume from the plant joins the suspended flume, the outside cables are tied to deadmen directly under them. This is done in order to hold the upper cables down in position so that the suspended flume can not rise higher than the bank or the stationary flume. When the suspended flume is empty, the catenary of the supporting cables changes to such a degree that the connection would be broken if the guide cables were not provided.

When the sand and water go on the suspended flume, the inside cables tighten and hold the flume in the proper position. If this were not the case, the grade of the suspended flume would not allow the load to be carried through it.

The cables used in this construction were of four types:

A. 8 × 19 cast-crucible with hemp center.

B. 8 × 19 plow-steel with hemp center.

C. 6 × 19 plow-steel, wire center, regular.

D. 6 × 19 plow-steel, wire center, preformed.

We have found that the preformed rope gives the best service, and wears longer when used under the same conditions as the regular-lay rope. While the initial cost is slightly higher, it is much the cheaper rope in the long run. Under bending and vibratory stresses, where fatigue is a constant factor, we have found that the preformed has double the life of the ordinary type. In all replacements at the plant preformed rope is now being used.

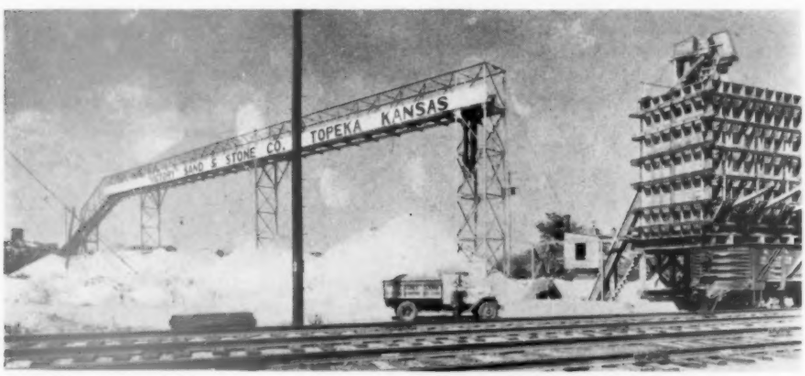
In the construction and assembly of the flumes, in order to have them flexible, each section was made 12 feet long, and, in assembling, the downstream end of each section extends into the section ahead. The flumes run from 22 inches wide at the top, or upstream, end to 20 inches at the downstream end. They are 16 inches deep.

In order that the flumes can work up and down but will not pull apart, they are fastened at each joint by telescoping. They are held together by a 5-inch chain with a lag screw placed 2 inches from the bottom in each flume section. We tried several arrangements but this proved the most satisfactory.

On the wide end and bottom of each flume a 3-inch iron channel is placed and extends 4 inches out on each side with a 15-inch eye-bolt threaded for 1 foot. These eye-bolts turn through a nut welded on the bottom of the channel, and have a swivel placed on the eye end of the bolt to provide a 12-inch adjustment at each point.

The suspended flume carries the discharge from a 10-inch Amsco pump, using a 10-inch suction line and an 8-inch discharge line. Under load the flume is designed to adjust itself so that the flow-line will be on a 5-per cent. grade, which makes the speed of the material (sand and water) passing through it approximately 8 feet per second. Every similiarly constructed flume can be made to handle the material discharged into it at approximately this speed.

When the flume is free from load, it forms a convex arc, but when the load is turned into it, the flume adjusts itself to the grade required to carry and discharge the load.



Storage piles at the Victory plant.

Parent tower and connection between suspended and stationary flumes.

On this job all the steel work and fastenings were furnished by the Topeka Foundry & Iron Works. The wire cable, both ordinary and preformed, used in the construction of the suspended flume, was purchased from the Independent Electric Company in Kansas City, Missouri. The construction work was done under the supervision of Joe L. Roe, plant superintendent, and Charles Mayo, carpenter foreman of our company. I drew the plans for the flume and had charge of the buying and general supervision. The cutting and welding and splicing were done by our own organization.

The construction of the suspended flume has solved the following production problems for our company:

1. It has forced the channel of the river to the plant side by placing the waste sand near the opposite bank of the river. And, in so doing, it has removed the sand bar which was created from years of operation prior to the construction of the new flume.

2. It has given us access to hundreds of thousands of tons of river material, which, without the suspended flume, would have been inaccessible because of our stationary plant and equipment.

3. It has greatly reduced the power cost per ton on material delivered from the plant, as it has allowed the barge to operate over an area much nearer to the screening plant, thereby shortening the discharge line and reducing the pumping head.

Our demands for material to-day are greater than they have ever been in our history. We are running at full capacity in order to furnish our share of the material needed for defense jobs and furnish it on time.

For our company, because of its stationary plant, the suspended flume was the answer to a serious and costly problem of production.

Trucking Firm Erects Slag-Crushing Plant on Inland Steel Company Dump

LIKE the meat-packing industry which reportedly utilizes every bit of the hog except the squeal, the nation's iron-and-steel mills today waste practically nothing. Coke-oven gases are recovered and used for fuel. Cinders, scale and flue-dust go back to the blast furnaces while the slag is temporarily consigned to dumps, later to be crushed and sold as commercial aggregates and ballast, or expanded with water or steam while still molten to produce lightweight aggregates.

Increasing amounts of slag are being used annually to blow mineral

Looking down the main conveyor toward the loading hopper. Slag dump and Lake Michigan in background.

By HARRY F. UTLEY

wool, and basic slag in the Birmingham district is utilized to some extent as a source of fertilizer phosphorus. Some slag is also used in cement manufacture.

By far the greater part—over 90 per cent.—of the blast-furnace slag processed is crushed, screened and sold for aggregates and ballast. One of the few new plants of this type to be erected in recent years is one just placed in operation on the property of the Inland Steel Company at Indiana Harbor, Indiana, by the Indiana Slag & Ballast Company. The plant was built on a slag-dump peninsula jutting out into Lake Michigan. It was from this dump that the Varady Trucking Company last year made daily deliveries of from 200 to 300 tons of "bank-run" slag to the Kingsbury Ordnance Plant near La Porte, Indiana, for roads and other purposes. These deliveries, made entirely by motor truck, taxed the capacity of the huge Varady fleet, a round trip being something over 100 miles!

The Kingsbury contract so impressed Daniel J. Varady with the importance of slag as a commercial material that he resolved to investigate its possibilities. Last summer he set up an experimental plant. Convinced of the merit of the product and the market, he formed the Indiana Slag & Ballast Company and started to erect the new plant, which has a capacity of 200 tons per hour of crushed and screened material.

To shorten the haul to the plant a cooling pit with a capacity of about 20,000 cubic yards was excavated alongside the plant and a spur track laid. This enables the ladle cars from the furnaces to discharge molten slag directly into the pit. When filled, water is allowed to run in and cool the slag. The cold water, striking the hot slag, shatters it and makes digging easier. Motor trucks and tractor-drawn Euclid wagons

The 40- by 22-inch double-roll crusher and its Diesel-engine drive.

are loaded with slag by a 1¼-cubic yard Lorain gasoline-powered shovel working in the cooling pit. The trucks and wagons dump the raw material into a 20-cubic yard steel receiving hopper. Grizzly bars spaced 8 inches apart reject the large slabs which are discarded.

Beneath the hopper a Pioneer apron-feeder puts the slag on a 30-inch by 200-foot Pioneer belt-conveyor which carries it to the top of the plant, an all-steel structure rising 50 feet above the ground. Here the material is fed over a Pioneer 4- by 18-foot tandem vibrator com-

The new slag plant shortly after operations had begun. The stack visible across the water at the left marks the Buffington plant of the Universal Atlas Cement Company.

Train of ladle cars which bring slag from the blast furnaces. The car at the extreme right provides compressed air for dumping the molten material.

posed of 4- by 10-foot and 4- by 8-foot double-deck vibrating screens. The top decks carry ½- and 1¼-inch-mesh cloth and the lower decks pass ¾- and ¼-inch material. A single-deck vibrator with 2½-inch mesh follows the tandem screens and the oversize is chuted back to ground

A view beneath the truck-loading bins.

level for crushing. Sized slag from the screens is chuted to six steel flat-bottom bins each of 100 tons capacity. The bins are equipped with gates for both truck- and car-loading.

The crusher, a 40- by 22-inch Diamond double-roll unit with one smooth and one corrugated roll, is operated in closed circuit with the main belt, the crushed product being returned by a 20-inch by 70-foot Pioneer belt-conveyor.

At his station along the 200-foot conveyor, one workman is constantly engaged in picking out iron slugs which are often trapped in the slag mass. Later on magnetic equipment will be installed to facilitate the removal of the iron.

Tandem vibrating screens which scalp off oversize and size the slag as well.

Power for operating the plant is supplied by two Caterpillar Diesel engines—one D4400 and one D1300 unit. Water for cooling the slag is pumped from Lake Michigan by a Jaeger self-priming pump and transmitted to the pit through a 2-inch pipe-line 500 feet long.

"Much interest has been shown in our new venture by road contractors, ready-mixed-concrete plants and other industries in this district, so we know the business is here," said Mr. Varady. "As we approach capacity operation, we will retire from the excavating and trucking business, although in some cases we may still make deliveries with our own fleet.

"Ours is the only slag-crushing plant in Northern Indiana and it gives us at least a 10-mile hauling advantage. Right now one of our biggest jobs is supplying slag to the huge synthetic-rubber plant rapidly rising in the swamp land west of Gary."

Adjustments Being Made on Liming Materials

Acting to insure an adequate supply of agricultural liming materials, the Office of Price Administration has established a specific procedure for the adjustment of the maximum prices of those producers whose March, 1942 selling prices were unduly low, on the sales and deliveries of such materials to the Agricultural Adjustment Agency. This action is contained in Amendment No. 9 to the Revised Supplementary Regulation No. 4 to the General Maximum Price Regulation, and became effective on September 12, 1942.

The procedure provides that a seller whose ceiling prices cause substantial hardship and are below the general level of last March, may apply to the OPA for an adjustment and, while the application is being considered, enter into a contract with the AAA for delivery of liming materials at the maximum price requested in the application. If the price requested in the application is modified or denied by OPA, the contract price must be modified accordingly.

Here Is Your Nearest Worthington Distributor

For Sales, Rentals and Service on BLUE BRUTE Portable Compressors, Rock Drills and Air Tools. Get your EQUIPMENT-SAVER — FREE

see full page ad page 61

ALABAMA
Birmingham — Ed Gantt Machinery Company
ARIZONA
Phoenix — Smith Booth Usher Company
ARKANSAS—Fort Smith — R. A. Young & Son
Little Rock — R. A. Young & Son
CALIFORNIA
Los Angeles — Smith Booth Usher Company
COLORADO
Boulder — Standard Machine Works
CONNECTICUT
Hartford — The Holmes-Talcott Company
GEORGIA
Atlanta — Tractor & Machinery Co., Inc.
ILLINOIS — Chicago — Kennedy-Cochran Co.
Rock Island — Western Equipment & Supply Co.
INDIANA
Indianapolis — Reid-Holcomb Company
IOWA — Des Moines — Electrical Eng. & Constr. Co.
KENTUCKY — Harlan — Hall Equipment Sales
Louisville — Engineering Sales Company
LOUISIANA
New Orleans — Wm. F. Sturgi Equipment Company
MAINE — Ellsworth — Murray Machinery Co.
MARYLAND
Baltimore — D. C. Elphinstone, Inc.
MASSACHUSETTS
Boston — P. I. Perkins Company
Cambridge — W. W. Field & Son, Inc.
MICHIGAN
Detroit — W. H. Anderson Company, Inc.
MINNESOTA
Minneapolis — The George T. Ryan Company
MISSOURI
Kansas City — Machinery & Supplies Company
St. Louis — Webster & Hedgcock Tr. & Eq. Co.
MONTANA — Helena — Caird Engineering Works
NEBRASKA
Lincoln — Highway Equipment & Supply Co.
NEW JERSEY
Irvington — Smith Tractor & Equip. Co., Inc.
NEW MEXICO
Albuquerque — The Harry Cornelius Company
NEW YORK
Albany — Larkin Equipment Company
Binghamton — MacDougall Equipment Co.
Buffalo — Dow & Company, Inc.
Corona, L. I. — The Jaeger-Lambo Machine Corp.
Glens Falls — Colin, Fox Co., Inc.
Middleton — S. T. Randall, Inc.
New York—Hubbard & Floyd, Inc.
New York — Morris Park Construction Co.
Olean — Freeborn Equipment Company
Oneonta — L. P. Butts, Inc.
Syracuse — Harrod Equipment Company
Troy — Briggs Machinery Company, Inc.
NORTH CAROLINA
Durham — Constructors Supply Company, Inc.
OHIO — Cincinnati — The Finn Equipment Company
Cleveland — Gibson-Stewart Company
Marietta — Northwest Supply & Equipment Co.
Toledo — M. W. Kilcorse & Company
OKLAHOMA
Oklahoma City — Townsco Equipment Co.
OREGON
Portland — Andrews Equipment Service
PENNSYLVANIA
Easton — Sears & Bowers
Harrisburg — N. A. Coulter
Oil City — Freeborn Equipment Company
Philadelphia — Metalweld, Inc.
Pittsburgh — John McC. Latimer Company
Wilkes-Barre — Ensminger & Company
SOUTH CAROLINA
Columbia — Bell-Lott Road Machinery Co.
SOUTH DAKOTA
Sioux Falls — Empire Equipment Co.
TENNESSEE
Chattanooga — James Supply Company
Knoxville—Wilson-Weesner-Wilkinson Co.
Memphis — Tri-State Equipment Company
TEXAS — Dallas — Shaw Equipment Company
Houston — McCall Tractor & Equipment Co.
San Antonio — Patten Machinery Company
VIRGINIA
Richmond — Highway Machinery & Supply Co.
WASHINGTON
Seattle — Star Machinery Company
WEST VIRGINIA
Fairmont — Interstate Engineers & Constructors
WISCONSIN
Eau Claire — Bradford Machinery Company
Green Bay — Nelson Machinery Company
Madison — Western Equipment Company
WYOMING
Cheyenne — Wilson Equipment & Supply Co.

Get more WORTH from air with WORTHINGTON

Buy Blue Brutes

Worthington Pump and Machinery Corp.

TIGER AT YOUR FINGER-TIPS

Get hold of this 80-pound Blue Brute, for fast, hard-hitting, clean-clawed destruction! Watch it rip *your* breaking or demolition time in half!

For this Worthington WB-80 delivers half again as many blows per minute as the ordinary paving breaker. Yet you'll find it's got amazing ease of operation for its size and power. It's a "Tiger" — but easy to control and even easier to handle!

All Worthington Blue Brutes are made to save you time and money on today's tough budget-busting jobs where every second, every dollar, counts. Worthington rock drills and air tools *use* less air, need less repair. Rugged Worthington Compressors . . . portable and semi-portable, gasoline-driven, diesel, electric . . . *deliver* more air, through famous Feather* Valves more smoothly, more economically. Try 'em out now, on your present job! Start today to get more *worth* from air, with Worthington!

FREE CONSERVATION AID

Metals scarce? Tools and parts hard to get? Ask your nearest Worthington distributor, listed on page 60, for the free EQUIPMENT-SAVER, a guide to compressor and tool-conservation, divided into sections ready to post on the job. If your distributor is not listed, write to Holyoke for your copy today.

* Reg. U. S. Pat. Off.

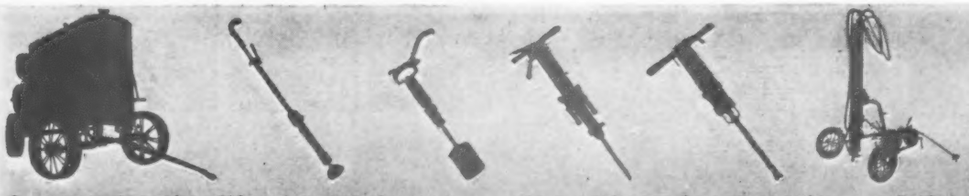
On the Job with

BLUE BRUTES

On a street car track removal job in the East, the Yankee foreman said, "We didn't waste any time or money on our Blue Brutes digging out this scrap to beat the Axis!"

Get more WORTH from air with WORTHINGTON

BUY BLUE BRUTES



Compressors from 60 to 500 cu. ft. capacity in mountings to suit all jobs. Rock Drills and Air Tools that have always set the pace for easy operation — available in a wide range of weights and sizes.

WORTHINGTON

Worthington Pump and Machinery Corporation, Harrison, N. J. Holyoke Compressor and Air Tool Department, Holyoke, Massachusetts

The Laughlin Safety Clip takes the rope in its all-round grip of drop-forged steel. Four flat bearing surfaces grip the rope without weakening or distorting it, delivering 95% of the rope's strength. No finger-pinching U-Bolt bite — bowing and weakening rope below the clip, inviting breakage and accident, or slippage if the U-Bolt goes on backward. Inexperienced help make this last a real hazard.

Save Steel—Save Time—Save Accidents for Full War Effort

There's 25% less steel in a Safety Clip assembly that's as strong as a U-Bolt job. That means more valuable steel for armaments when you buy Safety Clips. Help keep 'em rolling — use the safer, foolproof Safety Clip. And no crimped rope ends to be cut off as wasted metal — rope costs money these days.

And YOU Make These Savings!

No rope bowing or crimping	rope saved
No battered, bent threads	clips saved
No special wrench	tools saved
Bolts on opposite sides	tightening time saved
Can't go on wrong	accidents saved
Fewer clips needed	clips saved
Fewer rope breaks	accidents saved

Distributed Exclusively Through Mill Supply Houses

Look for Loughlin Products in Pit & Quarry Handbook

THE THOMAS LAUGHLIN COMPANY
PORTLAND, MAINE

PERSONAL MENTION

C. T. GRISWALD has been appointed general manager of the operations of the Pumic Corporation of America at Grants, New Mexico, succeeding the late JOHN N. EBERT. Mr. Griswald is a mining engineer with a wide experience in minerals production.

HARRY GILLELAND, Concho Sand & Gravel Company, Pawhuska, Oklahoma was seriously injured when a box of blasting caps exploded in his right hand recently.

ROBERT SCHULTZ, connected with the sales department of the crusher division, Nordberg Manufacturing Company, Milwaukee, has been called to active duty from the Reserve Officers' Engineers Corps and is at present stationed at Camp Leonard Wood in Missouri. He has been commissioned a first lieutenant.

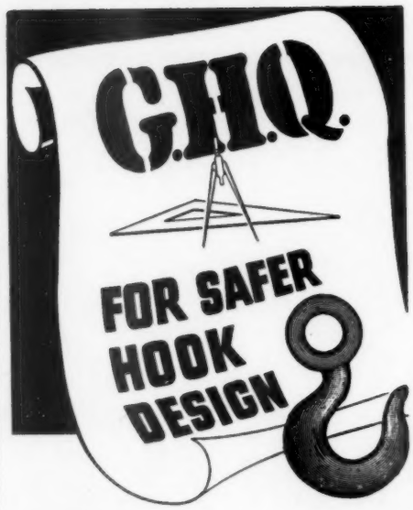
K. C. TIPPY, engineer attached to the Cement Products Bureau of the Portland Cement Association, Chicago, for the past six years has resigned to become an assistant professor of civil engineering at Syracuse University. He has a host of friends among concrete-products manufacturers.

WALTER L. MAXON has been appointed manager of the Allis-Chalmers Manufacturing Company's crushing, cement and mining-machinery department. He succeeds HERMAN SCHIFFLIN, who is retiring. Before entering the employment of Allis-

Herman Schifflin

Walter L. Maxon

Chalmers in 1927, Mr. Maxon was a professor of metallurgy at the Colorado School of Mines. In 1940, he became sales manager and chief engineer of the mining-machinery division. Mr. Schifflin has been manager of the department since its creation in 1926, and had managed the cement-machinery division since 1907.



Laughlin offers you the most complete line of hoist hooks on the market, in the most varied and fool-proof choice of safety designs — all drop-forged from selected steel and heat treated. Look for the (A), the sign of strength and safety.

Safety Eye Hook **Safety Shank Hook** **Safety Swivel Hook**

The Safety Hook That's Really Safe

A safety latch (as illustrated) is available on all sizes and styles of Laughlin Hoist Hooks. The properly designed, stout-springed safety feature securely traps the sling — no hazard of accidental slipping or jolting off.

THE STRONGEST OF ALL DESIGNS — LAUGHLIN'S CARGO HOOK

Well known to shipping men, this hook is designed for a straight pull. It is as strong as a standard hook twice its weight. The protective tooth prevents hook catching and tipping the load. Hooked lip gives added security.

Available for 2, 4 and 10 ton loads.

Laughlin's Latest Catalog Shows the Complete Line of Laughlin Wire Rope Fittings. Send for it.

Distributed exclusively through Mill Supply Houses

Look for Loughlin Products in Pit & Quarry Handbook

THE THOMAS LAUGHLIN COMPANY
PORTLAND, MAINE

WINIFRED KIDD BLISS, wife of W. A. Bliss, director of the Dravo Corporation and general manager of its Keystone Sand Division, died at her home in Beaver, Pennsylvania, September 3, after a long illness. In addition to her husband, she is survived by three sons and one daughter. Mrs. Bliss was well known in the sand-and-gravel industry and, prior to the last convention, had always attended. At the time of the 1931 convention in Pittsburgh she was chairman of the Womens' Entertainment Committee.

I. H. WHITE, who served as carpenter foreman when the Atlas Portland Cement Company plant was erected in Hannibal, Missouri, in 1898, and Mrs. White, celebrated their golden wedding anniversary in Hannibal on August 21. The Whites have lived in the same home on Terrace avenue of that city for 25 years and a family dinner was held there on their anniversary date for their close relatives.

HUGH S. LEWIS has been made operating manager of the Michigan Limestone & Chemical Company following the retirement of JOSEPH PENGLASE, vice-president and general superintendent. Other promotions include: REGINALD STANBROOK, chief engineer; ROBERT HAMILTON, general quarry superintendent; GEORGE C. WING, general superintendent of repair shops; and FRED G. LALONDE, quarry shift foreman.

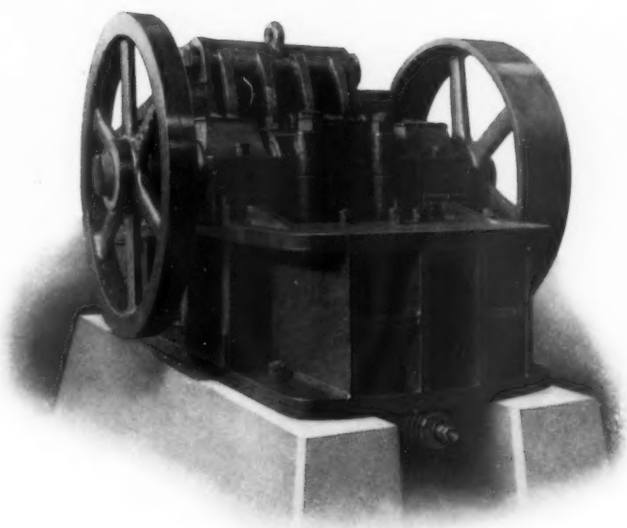
JOHN N. EBERT, 39, vice-president of the Pumice Corporation of America, and in charge of its operations at Grants, New Mexico, died September 4 of a heart attack in Gallup, New Mexico. Previously he had been an official of the Barnsdall Tripoli Corporation, Seneca, Missouri, former owner of this plant, with which he had been connected for 17 years.

LAWRENCE C. NEWLANDS, 65, president of the Oregon Portland Cement Company since 1915, died August 30 in a Portland, Oregon hospital. He was a native of Kingston, Ontario.

JOHN J. STEINER, an employee of the Missouri Portland Cement Company, St. Louis, was fatally injured recently when he was crushed between a string of freight cars and a loading platform at the plant.

TRAYLOR

TYPE H BLAKE JAW CRUSHER



IF the capacity you are aiming for is not too large—and IF most of your sales are in small sizes — and IF you'd like to do the job with a minimum number of crushers (as, of course, you would), then the Traylor Type H Blake Jaw Crusher is your best "buy."

You see, the Type H is fitted with CURVED JAW PLATES (using the principle of the Bell Heads and Curved Concaves that have made Traylor Reduction Crushers famous) and that means that you can crush more stone finer, without increasing the horsepower consumed.

Using a size 18" x 36" as an example,—an ordinary Blake crusher with old style straight jaw plates will produce about 42 T.P.H. at its smallest practicable setting (2½") at 65 H.P. The Type H will crush about 77 T.P.H. to this size—and about 46 T.P.H. to 1½" at 60 H.P. IN ADDITION, the wearing metal consumed per ton of output is much less in the Type H, and product contains less waste fines and is more cubical, both because the curved jaw plates eliminate all choking.

The Frame of the Type H is made of steel plate, full welded throughout, the Pitman Shaft Bearings are separate and the simplified and improved Swing Jaw Suspension is wear and power saving. Built in eight sizes to 30" x 42", the Type H has a wide range of application covering almost every ordinary requirement. Investigate the Type H Blake Jaw Crusher, to your profit!

SEE BULLETIN 2105

TRAYLOR

ENGINEERING & MANUFACTURING CO.

MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

NEW YORK CITY, 3416 Empire State Bldg. | CHICAGO, 2051 One La Salle St. Bldg. | SALT LAKE CITY, 101 West Second South St. | LOS ANGELES, 919 Chester Williams Bldg. | SPOKANE, South 2707 Rhyolite Road

B. C. EQUIPMENT CO., LTD., 551 Howe St., Vancouver, B. C.

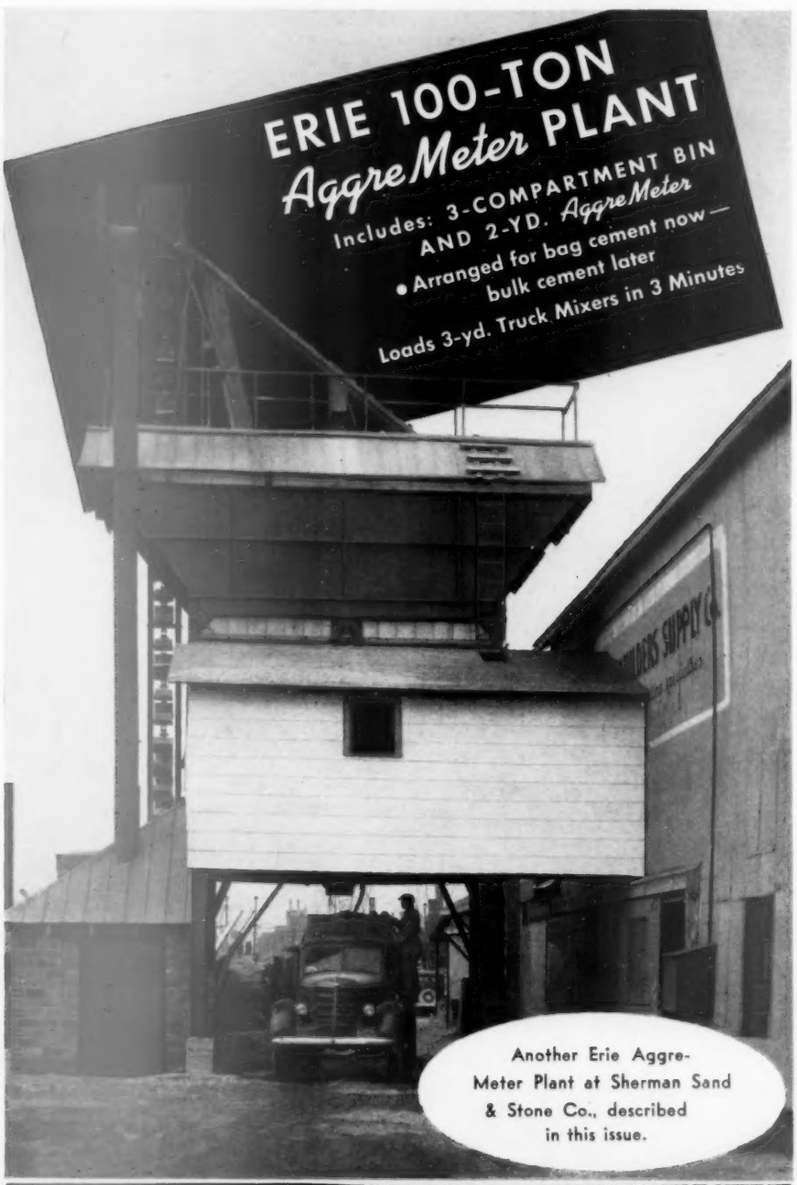
MANILA MACH. & SUPPLY CO., INC., Manila and Baguio, P. I.

Export Department—104 Pearl St., New York City. Foreign Sales Agencies: London, Lima, Sao Paulo, Rio de Janeiro, Buenos Aires, Santiago, Valparaiso, Ourto, Antofagasta, San Juan, P. R.

WILLIAM R. ELDEN, 59, manufacturers' representative at New York, died September 2. Following his graduation from Purdue University in 1905, Mr. Elden was a sales engineer for the Lidgerwood Manufacturing Company until 1921, when he joined Sauerman Brothers, Inc., of Chicago, where he remained as chief engineer until 1939. In 1939 he opened his own New York office to represent Sauerman Brothers, Inc., and other manufacturers of material-handling equipment.

RICHARD WATHEN, 53, a salesman for the Kosmos Portland Cement Company, Louisville, was found dead in his home in that city August 26. The coroner said death resulted from a heart attack.

RALPH W. MEAD, 64, founder of the American Vault Company of Cleveland, and its president for years, died in that city recently. He served as secretary of the National Concrete Burial Vault Association for many years.



PORTABLE AND STATIONARY CONCRETE PLANTS

ERIE STEEL CONSTRUCTION CO.

642 GEIST ROAD • ERIE, PENNSYLVANIA

BINS • DIGGING AND REHANDLING BUCKETS • ELECTRIC BUCKETS

LABOR DECISIONS

Unionization

National Labor Relations Board v. Bradley Lumber Company of Arkansas, decided by the U. S. Circuit Court of Appeals, Eighth Circuit, June 26, 1942; reported at 128 Fed. (2d) 768.

This was a proceeding for enforcement of a cease-and-desist order of the National Labor Relations Board, contested principally on the ground of the findings of the board. The court holds that it was within the board's power to conclude that the granting of a great number of loans to employees, just prior to the holding of an election to determine whether a majority of the employees desired representation by a union, and the distribution of whiskey to colored employees after the union lost the election, tended to discourage membership in the union and constituted interference and restraint forbidden by the National Labor Relations Act.

Furthermore, the findings of the board that certain discharges were for union activities rather than for other reasons claimed by the employer "are not without some substantial evidentiary support," and will not be disturbed by the court.

Interstate Activities

Walling v. Goldblatt Brothers, Inc., decided by the U. S. Circuit Court of Appeals, Seventh Circuit, June 25, 1942; reported at 128 Fed. (2d) 778.

The employer in this case owns and operates three warehouses in Chicago at which it receives merchandise from some forty-five states and from which it thereafter distributes goods to its ten department stores, seven of which are in Chicago, one in Joliet, Illinois, one in Hammond, Indiana, and one in Gary, Indiana. Some manufacturing operations are carried on in some of the warehouses, including the processing of bakery and food products, meat compounds, blankets, draperies, slip covers and other articles. One warehouse also operates a department which manufacturers and binds printed forms for use in the stores and warehouses and prepares copy for advertisements.

After examination of the facts and law the court concludes that "those employees who order and procure, those who unload goods from with-

out the state, at defendant's warehouses, those who check them before they are deposited on the unloading platform, those who manufacture goods at the warehouses, those engaged in maintaining, operating. caring for and servicing warehouses where production for commerce occurs, and those who pack and ship goods to Indiana from the warehouses" are within the coverage of the Fair Labor Standards Act of 1938. "Those employees, however, who are concerned solely with storage in the warehouses and in delivery of goods to the Illinois stores and those printing and preparing record books, memoranda, and advertising copy are not subject to the act."

The court notes that "apparently the act contemplates in some measure that purely local retail employers on or near a state line should not be included," but "this limitation was aimed, apparently, at small local establishments which lie near a state line and those in a city lying within two states," and the court does not believe that the Congress intended to except a business having two stores in Indiana which serve only Indiana trade in very substantial amounts of goods brought from Illinois. "This is no more local than if the outlets had been in Iowa, Wisconsin or Michigan."

Subpoenas

Cudahy Packing Company, Ltd., v. Holland, decided by the U. S. Supreme Court, March 2, 1942; reported at 315 U. S. 357.

A subpoena issued by a regional director of the Wage and Hour Division commanded the production before a specified officer of the division of all the appealing company's books, papers and records showing for a period of 18 months after the effective date of the wage-and-hour provisions of the Fair Labor Standards Act the hours worked by employees, all the wages paid, all purchases made and shipments received, and all goods sold, shipped, delivered, transported or offered for sale at the plant concerned. The subpoena was held valid by the U. S. District Court and by the U. S. Circuit Court of Appeals, but those decisions are reversed in this ruling of the Supreme Court.

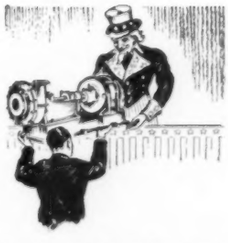
The Supreme Court holds that the act does not confer upon the Administrator of the Wage and Hour Division the power to delegate to any of his subordinates the subpoena power which Congress granted to him.

The "roof" and "floor" of the ocean both pass through MORRIS Pumps

. . . because Morris Centrifugal Pumps are widely popular for handling surface water on ship-board, as well as for dredging sand and gravel and other dredging services.

The extensive use of Morris Centrifugal Pumps and Hydraulic Dredges have proved their effectiveness, economy, and lasting reliability for every requirement in the sand and gravel industry. 78 Years of experience are behind MORRIS recommendations and are at your service.

WE HAVE ENLISTED



"FOR THE DURATION"

We have placed at the disposal of the government all our facilities that might be of use in the national war effort. But our remaining facilities are at your service, and also the advice of our engineers to help you secure best results from your present equipment and to plan for your future needs.

MORRIS MACHINE WORKS

MORRIS
ESTABLISHED 1864

BALDWINSVILLE NEW YORK

CENTRIFUGAL PUMPS

PERFORATED METAL SCREENS

FOR SAND, GRAVEL STONE, ETC.

Manufactured exactly to your specifications.

Any size or style screen, in thickness of steel wanted with any size perforation desired.
We can promptly duplicate your present screens at lowest prices.
Prompt Shipment

CHICAGO PERFORATING CO.
2435 W. 24TH PLACE CHICAGO, ILL.
Telephone CANAL 1459

When You Buy a Crusher What Should You REALLY Buy?

DIAMOND Standard Jaw Crushers are made in 13 sizes from 6" x 12" to 24" x 36" and Roll Crushers in 6 sizes from 16" x 16" to 54" x 24", and various sizes of these are used in stationary or portable quarry plants and crushing units.

THESE are the things you should look for and **expect** in the crusher you buy:

1. A base heavy, rugged and properly reinforced to withstand the hardest crushing operations.
2. Pitman and plates (or rolls) carefully made of suitably hard material to give long and satisfactory use.
3. Proper **balance** for easiest running and consequent economy of power.
4. Delivery of **full** capacity.
5. Construction primarily based on the hardest type of crushing.

Don't buy on claims unless those claims can be thoroughly backed by performance records. And speaking of records, DIAMOND has some recent and very outstanding ones we're anxious to talk about. Either we, or any of our dealers will tell you all about it. In fact, we'd like to consult with you on **any** crushing, screening, conveying or elevating problem you have.

WRITE US or contact our nearest dealer for full details of DIAMOND ROCK, SAND AND GRAVEL EQUIPMENT. Free bulletins on request.

DIAMOND IRON WORKS, INC.
ESTABLISHED 1880
MINNEAPOLIS, MINNESOTA, U. S. A.

OCCUPATIONAL DISEASES and the LAW

Silicosis

Benson v. Jarvis, decided by the Supreme Court of Idaho, July 11, 1942; reported at 127 Pac. (2d) 784.

In the appellant's claim before the Idaho Industrial Accident Board he alleged that he sustained a "personal injury by accident" by contracting silicosis while working in respondent's mine; that by reason of so contracting silicosis he became totally and permanently disabled from performing work and labor; and that such personal injury was caused by respondent's negligent operation of the mine.

The board found that the worker had been engaged for almost 35 year in mining, and had been exposed to the inhalation of silica dust to such a degree that he had silicosis grade 2, and that he had suffered with tuberculosis; but that the work he did for the defendant (during a period of a few months did not cause the silicosis from which he was suffering and did not cause or light up, or aggravate, tuberculosis, and did not aggravate the silicosis more than any other work would have done, if it aggravated it at all, and that neither the onslaught of silicosis nor the aggravation thereof was sudden. The board, accordingly, denied an award of compensation.

The court, in this decision, finds upon examination of the evidence that it supports the board's findings and order, and the denial of compensation is affirmed.

Amount of Benefits

Kunst v. General Bronze Corporation, et al., decided by the New York Supreme Court, Appellate Division, Third Department, July 1, 1942; reported at 35 N. Y. S. (2d) 878.

This was an appeal from an award of the New York State Industrial Board pursuant to Article 4-a of the New York Workmen's Compensation Law. Death benefits of $3,500, less payments previously made for disability, were awarded to the widow of an employee who died

June 30, 1941, of silicosis. The decedent had become totally disabled from silicosis, by reason of his employment, on April 20, 1939.

Under Section 66 of the Workmen's Compensation Law, compensation for silicosis is based upon a scale of increasing benefits with fixed maximum compensation payable for disability and death. The maximum compensation payable under the scale set up by Section 66 as amended at the date of the worker's death was $3,500. The maximum payable under the section on April 20, 1939, the date of disablement, was $2,200.

The court holds that the award based on the $3,500 maximum should be affirmed. "The language of Section 66 clearly states that in death cases 'the aggregate amount payable shall be determined by the total amount payable in the month in which disablement or death occurs.' There is no dispute but that this amount was $3,500 under the scale in the month in which the death herein occurred. The fact that the lower maximum was in effect at the date of the disability does not operate to compel the claimant to use this lower basis. Neither is the fact controlling that payments had been made on the lower basis during decedent's life. He obviously could not know if or when he would die, so he could not take advantage of the higher benefit figure. This does not prevent his widow from so doing."

Claim After Death

State ex rel. Raymond et al. v. Industrial Commission of Ohio, decided by the Supreme Court of Ohio, July 8, 1942; reported at 42 N.E. (2d) 992.

The single question for decision here was whether claims had been filed before the Industrial Commission within the period required by Section 1465-68a, Ohio General Code, which reads in part as follows: "Claims for compensation on account of silicosis shall be forever barred unless application shall have been made to the industrial commission within one year after total disability began or within six months after death." The decedent became totally disabled November 17, 1939, and died March 16, 1940. One claim was filed more than seven months later, on October 22, 1940, and another on April 12, 1941, nearly thirteen months after decedent's death.

The claimants insisted that the statute permits a death claim to be made by dependents either within one year after total disability began

A Ball Mill Manufacturer's Views on the *Comparative Values of Liner Metals*

"From our own observations and the experience gained through many years of operating and building ball mills, we consider that 13% manganese steel is from two to three times as durable as any other metal for ball mill liners operating under normal conditions with mixed ball charges of sizes from 1½" to 4" or even larger. This comparison includes chilled iron, alloy irons, carbon steel and other alloy steels.

"In actual service a 1½" manganese steel liner can be worn down to ½" thickness or even less before it has to be discarded. We have specimens of manganese steel liners in our shop that were worn down to ⅛" thickness without any sign of cracking or breaking. On the other hand, 3½" thick while iron liners have had to be discarded when worn down to 1½" because of breakage which often causes severe damage to the shell of the mill itself unless quickly discovered by the operator."

The writer goes on to state that the thinner the liner can be, the greater the efficiency of the ball mill, by virtue of the increased inside diameter. A mill with white iron liners 44" diameter, grinding 25 tons in 24 hours, could produce 30 tons in the same period if manganese steel liners were used, increasing the diameter to 48".

He also points out the savings in freight, whether the liners are original equipment or for replacement, since a set of manganese steel liners for a No. 44 mill, for example, weighs approximately 3,300 pounds compared to white iron or similar liners weighing 6,700 pounds. Too, the lighter weight liners are obviously easier to fit to the mill and shorter and less costly bolts are required. There is no danger of breaking manganese steel liners by uneven tightening of retaining bolts.

A greater variation in liner designs is possible with manganese steel, because of its strength and ductility, than with white iron and other hard, relatively brittle metals.

These factual comparisons are extracted from the more detailed report of this particular manufacturer contained in our Bulletin 1141-L. It gives other information concerning manganese steel liners, discusses liner design and pictures representative shipments, and will be sent on request.

One of many designs of manganese steel liners—a typical shipment.

Amsco

AMERICAN MANGANESE STEEL DIVISION
OF THE AMERICAN BRAKE SHOE & FOUNDRY CO.
Chicago Heights, Illinois

Manganese Steel Castings for shocks and abrasion.
Chromium-Nickel Alloy Castings for heat and corrosion resistance.
Power Shovel Dippers. Dredge and Industrial Pumps.
Welding Materials for reclamation and hard-surfacing.

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO. OFFICES IN PRINCIPAL CITIES

or within six months after death. The court holds, however, that the statute provides for two types of compensation by reason of silicosis. "One is that of an employer himself based upon his own disability; and the other is that of his dependents arising by reason of his death," and the statute clearly provides that a death claim be filed within six months of death, and a disability claim be filed within one year. If the claimant's theory is right, "they cannot escape the unexplainable result of their necessarily holding in similar fashion that an employee may file his own claim for disability *either* within one year after total disability *or* within six months after his own death!"

The action is accordingly dismissed.

The Lincoln Road Equipment Company, Lincoln, Nebraska, is a new dealer of Diamond Iron Works, Inc. The company will represent the Diamond line in the entire state of Nebraska.

The Ransome Concrete Machinery Company, Dunellen, New Jersey, has changed its name to the Ransome Machinery Company.

TRAFFIC News Digest

I. C. C. Reports

Lime. Docket No. 26937. National Mortar & Supply Company *v.* Pennsylvania *et al* covering No. 27008, Laurens Glass Works, Inc. *v.* Charleston & Western Carolina Railway Company *et al*, and No. 27012, Chattanooga Glass Company *v.* Pennsylvania *et al.* By division 2. On further hearing, findings and order in original reports, 216 I. C. C. 75, prescribing scales for distance rates on lime, carloads, from Cold Springs, Gibsonburg, and Woodville, Ohio, to points in southern territory, modified and amended to permit defendants to establish and maintain a 70 per cent. arbitrary, in addition to scale rates, for hauls over certain short lines. The report stated that such an arbitrary was to accrue only to the Carolina Southern Railway Company, the Frankfort & Cincinnati Railroad Company, and the Georgia & Florida Railroad, petitioners.

Cement. Docket No. 28680. Monolith Portland Cement Company *v.* A. T. & S. F. *et al.* By Examiner T. Leo Haden. Rates on cement, carloads, from Monolith, California to Phoenix, Arizona, and points immediately adjacent and beyond Phoenix taking the same rates, not unreasonable but unduly prejudicial to complainant and unduly preferential of complainant's competitors to the extent that they exceed or may exceed the rates contemporaneously maintained from Victorville, Crestmore, and Colton to the same destination. Undue prejudice ordered removed.

Motor Reports

Matawan, New Jersey. MC 61137. Sub. 1. Richard Burlew, Jr., extension. Certificate recommended, Clay, in bulk, to be hauled in dump trucks from South Amboy, New Jersey, and points in Madison township and Sayreville township, in Middlesex county, New Jersey to points in Pennsylvania and New York, located within 100 miles of South Amboy, New Jersey, with return of rejected shipments.

Elkton, Maryland. MC 101807. Sub. 1. E. E. Losten. Denial of certificate proposed. Stone, sand, gravel and similar materials used by dredging concerns between points on and adjacent to Chesapeake & Delaware Canal in Cecil county, Maryland, on the one hand, and in Newcastle county, Delaware, on the other, over irregular routes.

Revised General Order No. 18

At this writing Joseph B. Eastman, Director, Office of Defense Transportation, postponed from September 15 to October 15 the effective date of General Order ODT No. 18, which requires maximum loading of cars carrying civilian freight, in order to conserve war-time railway transportation space.

Mr. Eastman held that the purpose of the postponement was to permit sufficient time for consideration of new suggestions for improvement of the order and for clarification of certain provisions. During the postponement period copies of the revised order will be sent to shippers so that they may have sufficient time to make whatever changes are necessary in their trade practices prior to the order's effective date. The objectives of the order have already been publicly announced, Mr. Eastman stated, and he expressed the hope that during the postponement shippers and carriers both would de-

Prevent **BURN-OUTS** *at both* **KILN-ENDS**

The use of PYRASTEEL Kiln Ends is not by any means confined to the *discharge end.*

Such high temperatures are frequently encountered at the *feed end* of the kiln, as to make the use of

PYRASTEEL SEGMENTS

the most practical method of preventing *burnouts* and interrupted operations.

There are many PYRASTEEL installations on the *feed end* and on the *discharge end* of rotary kilns . . . . also where both the feed and discharge ends are provided with PYRASTEEL Segments. All are giving satisfactory results.

Write for Bulletin on this Heat-Resisting Alloy

CHICAGO STEEL FOUNDRY COMPANY
KEDZIE AVE & 37TH ST
CHICAGO
Makers of Alloy Steel for 30 Years
PYRASTEEL for high temperatures
EVANSTEEL for strength

vote special attention to working out methods of meeting the order's objectives.

Open-Top Cars

Chairman Kendall, of the car-service division of the Association of American Railroads, advising coal loading roads that steps should be taken further to conserve the use of open-top cars because of the increasing demand for such cars, has directed that a 75 per cent. rule covering the placement of cars for coal loading be made effective September 12, in place of the present 100 per cent. rule.

This should be of interest to members of the stone industry for there is usually a heavy demand for open-top cars for agricultural limestone shipments during the Fall season.

Central Freight Association

Docket 71450. (Carrier's Proposal) Sand and gravel in carloads. Cancel Items 1260 to 1284, C. F. A. L. Tariff No. 575—A, publishing rates on, from Portsmouth and Sargents, Ohio, to destinations on the C. & O. R. R. in West Virginia beyond Gauley, West Virginia. Classification basis to apply.

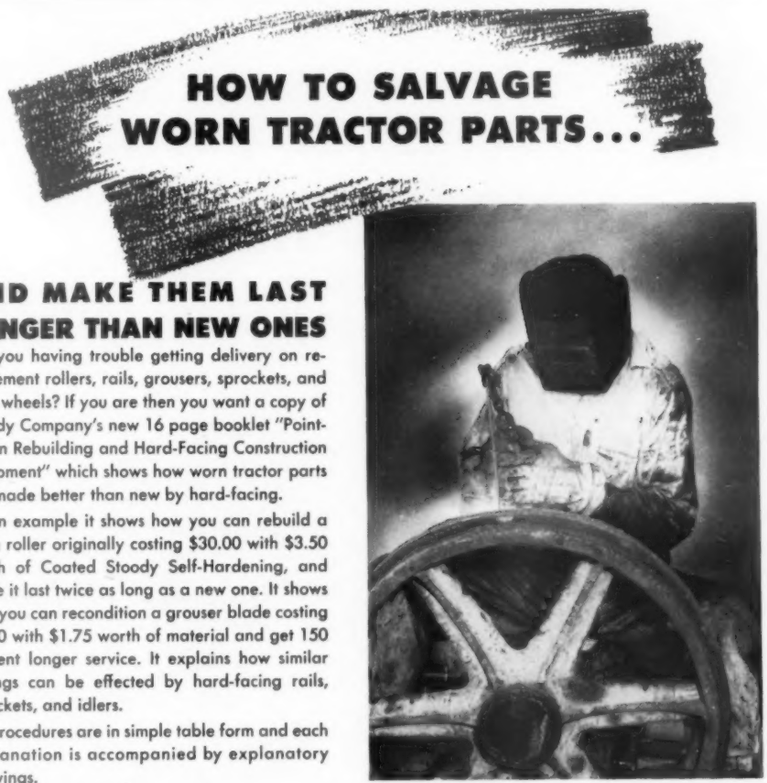
Docket 71452. (Shipper's Proposal) Clay, crude, common or fire. carload. Minimum weight 60,000 pounds. Establish on, from East Sparta and Mineral City, Ohio, to Willow, Ohio, a rate of $1.32 per net ton. Via B. & O. R. R. direct. Subject to Ex Parte 148 increase.

Docket 71459 (Shipper's Proposal) Cement, common, hydraulic, masonry, mortar, natural or Portland, carload, minimum weight 50,000 pounds, except when the marked capacity of the car is less, in which event the marked capacity of the car will be the minimum weight, but in no case less than 40,000 pounds. Establish a rate of 32 cents from Bay Bridge, Ohio, to Boston, Massachusetts. Subject to Ex Parte 148 increase.

Docket 71509. (Shipper's Proposal) Crushed stone, in open-top cars. Establish a rate of 94 cents per net ton from Middlepoint, Ohio, to Hayden Siding, Indiana. Subject to Ex Parte 148 increase.

Docket 71584. (Shipper's Proposal) Sand (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, molding or silica), and gravel, in open-top equipment, carload. Establish a rate of 94 cents per net ton from Warsaw, Indiana to Hayden Siding, Indiana via usual routes. Subject to Ex Parte 148 increase.

Docket 71585. (Carrier's Pro-


HOW TO SALVAGE
WORN TRACTOR PARTS...
AND MAKE THEM LAST
LONGER THAN NEW ONES
Are you having trouble getting delivery on replacement rollers, rails, grousers, sprockets, and idler wheels? If you are then you want a copy of Stoody Company's new 16 page booklet "Pointers on Rebuilding and Hard-Facing Construction Equipment" which shows how worn tractor parts are made better than new by hard-facing.
As an example it shows how you can rebuild a worn roller originally costing $30.00 with $3.50 worth of Coated Stoody Self-Hardening, and make it last twice as long as a new one. It shows how you can recondition a grouser blade costing $5.50 with $1.75 worth of material and get 150 percent longer service. It explains how similar savings can be effected by hard-facing rails, sprockets, and idlers.
All procedures are in simple table form and each explanation is accompanied by explanatory drawings.
Pointers
To get your copy of "Pointers" fill in and return the coupon. There is no cost involved and you will not be obligated in any way.
YOUR NAME
POSITION
COMPANY
ADDRESS
CITY
STATE
STOODY COMPANY
1134 West Slauson Avenue • Whittier, California
STOODY COMPANY Hard Facing Alloys

Gruendler's 57th Year

PORTABLES

Serving America with Large Production of Aggregates

LIMESTONE PULVERIZERS
Large Production—Low Cost Per Ton

Stationary or Portable
Adjustable
Crushes Large Stone to 2" minus Down to Agricultural Dust
Built in (8 Sizes)

STRAIGHT LINE ROCK AND GRAVEL CRUSHING AND SCREENING PLANTS

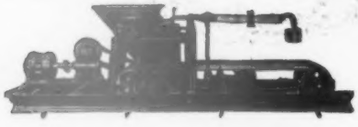
Self Traveling Tractor
JAW CRUSHERS
Ideal for maintenance and access road work
Self powered

Send for Catalog No. 601

GRUENDLER
CRUSHERS · PULVERIZERS · GRINDERS

GRUENDLER CRUSHER & PULVERIZER CO.
2905-15 N. Market St., St. Louis, Mo.

SCHAFFER POIDOMETER



Fast, Accurate, Economical in Proportioning Materials

Schaffer Poidometer may be counted upon to step up output and to maintain exactness in the proportioning of materials at all speeds. Sturdily built to stand up under the fast tempo of war-time production its use assures both accuracy and economy.

If you have a proportioning problem—raw or finished materials—write for Catalog No. 5.

SCHAFFER POIDOMETER CO.
2828 Smallman St. PITTSBURGH, PA.

posal) Crushed stone in open-top cars, carload. Establish a rate of $1.08 per net ton from Thornton, Indiana to Dana, Indiana.

Docket 71628. (Shipper's Proposal) Sand, all kinds, and gravel in open-top cars or box cars, as described in N. Y. C. Tariff No. 1914. Revise rates on, from Silica, Ohio to Cleveland, Ohio to be $1.16 in open-top cars only and $1.33 per net ton in box cars only, via reasonable direct routes. Subject to Ex Parte 148 increase.

NEW MACHINERY and SUPPLIES

● Pulverizer Hammer

The Clark renewable-tip pulverizer hammer, announced by the American Manganese Steel Division of the American Brake Shoe & Foundry Company, Chicago Heights, Illinois, is really a child of the times for metal conservation is its design feature.

The hammer consists of a weighted manganese-steel head connected to the rotor by two matching arms or bars of manganese steel. On the lower end of each bar are hooks which engage internal pockets in the head. The bars are bolted together under the eye so that

Two views showing worn and new hammer tips.

they form a one-piece arm, yet they are easily disengaged from the service worn head by unbolting.

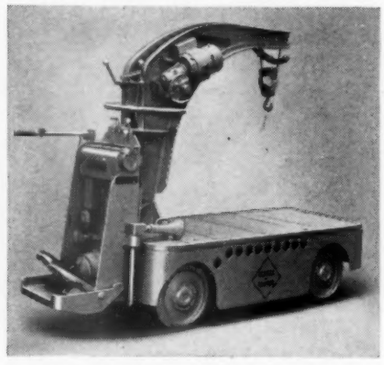
Pictured is a hammer as made and as worn in service. The new complete hammer weighed 110 pounds; arms 57½ pounds; head 52½ pounds. The worn complete hammer weighed 74 pounds; arms (still completely serviceable) 57 pounds, head (scrapped) 16½ pounds. Over two-thirds of the metal in the head was consumed in use before it was necessary to discard it.

It is claimed that this new design has six distinct advantages: great saving in weight of discarded parts; two-thirds of hammer head can actually be used up before renewing is necessary; time consumed in removing old and replacing new head is negligible; no operating stress is imposed on shank bolt used for assembling; head can not work loose and come off arm as long as the latter is on the supporting rotor pin; and no metal is lost by too early discarding of heads as the maximum use is indicated when lower ends of arms are visible.

● Lift Truck

A new Elwell-Parker industrial power transportation unit performs not only the separate functions of a load carrier, a crane and a tractor but also combines the typical operations of all three.

As a load carrier, the mobile unit has an unobstructed platform 84 inches long by 40 inches wide and 25 inches



Versatile transportation unit.

high, with a rated capacity of 6,000 pounds. As a crane handling up to 2,000 pounds at 42 inches on the boom, it lifts and transports heavy, bulky objects. As a tractor, it first loads the trailers by means of its own crane, then hauls them at speeds up to 5 m. p. h.

The truck operates with 2-wheel drive and 4-wheel steer. The frame is made up of heavy section-formed plates welded into a rugged one-piece structural unit embodying the control dash. The boom is of special design, of heavy formed channel members rigidly reinforced with tie rods, lattice bars and gusset plates and slews around a 3½-inch diameter alloy-steel pillar. Thrus load is taken on oversize ball-bearings at the base of column; radial loads on roller-bearings at both top and bottom.

● Synthetic-Rubber Belt

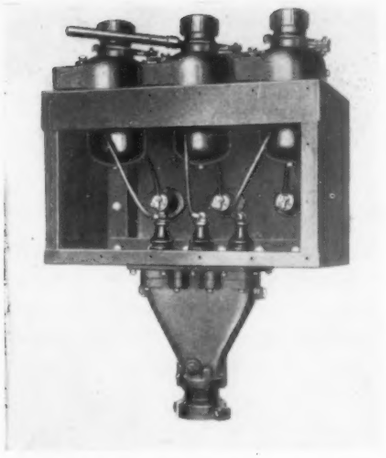
The Hewitt Rubber Corporation has completed the manufacture of an all-synthetic rubber conveyer belt which is believed to be the first of its kind made from Buna "S" synthetic rubber without the addition of natural rubber or reclaimed rubber.

Buna "S," which is a non-oil-resistant synthetic rubber, will gradually replace natural rubber as government plants swing into mass production in 1943 in the major lines of Hewitt products for war industries. These will include conveyer and elevator belting; tranmission belting; pneumatic tool and welding hose; fire hose; railroad hose; acid and chemical hose; and many miscellaneous molded articles.

● Oil Fuse Cutouts

A new metal-enclosed assembly of gang-operated oil fuse cutouts for economical short-circuit protection and switching has been announced by the General Electric Company.

The new cutout assemblies permit totally metal-inclosed installations, either single- or three-phase. They save installation labor because each unit is factory-assembled with flexible, insulated



Assembly of gang-operated fuse cutouts.

cable leads ready for connection to either single- or multi-conductor cable. The leads enter the individual cutouts above the oil level, thus preventing loss of oil. Switching requires merely throwing a lever 90 degrees. Fuse carriers can be removed without disturbing the gang-operating mechanism.

The new assemblies are particularly well adapted for use (indoor or outdoor) in industrial plants for branch circuits, individual transformers or banks, motors, control apparatus, and electric-heating and other equipment.

The new assemblies can be supplied for wall or direct-to-apparatus mounting, with openings for conduit, cable, or pothead connections in various ratings.

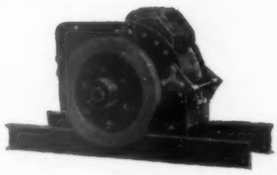
● Cooling System

Vitally needed increases in power-transformer capacities can now be obtained quickly with a new system of forced-oil cooling that saves 25 per cent. in critical war materials on new transformers, the Allis-Chalmers Manufacturing Co. has just announced. The new cooling unit, called the "Electro-Cooler" will step up capacity of transformers already in service by about 20 to 60 per cent., the company reports.

The forced-oil system of cooling transformers is made highly practical with

Colonel J. S. Seybold presenting the Army-Navy "E" pennant to T. M. Evans, president, H. K. Porter Company, Inc., and John Thiery, veteran of 46 years service to the company. The Porter firm, manufacturer of industrial locomotives and chemical-processing equipment, was the first in Pittsburgh and one of the first group in the nation to receive the joint award.

PULVERIZE LIMESTONE *Economically*
with the NEW HOLLAND Model 20



• The high efficiency and modern engineering of the New Holland Model 20 means increased production and lower operating costs. Features include Adjustable Hammers, Adjustable Breaker Plate, Ball Bearing Shaft, new design Tramp Iron Pocket, and Boiler Plate Steel Construction.

Write for complete catalogue

NEW HOLLAND MACHINE CO.
NEW HOLLAND, PENNSYLVANIA

RUGGED and DEPENDABLE
HEAVY-DUTY TRUCKS
from SMALLER UNITS
... and Uncle Sam Approves!

YOU NEED BIG-CAPACITY, HUSKY TRUCKS for today's jobs . . . but you can't buy standard equipment of this type now.

QUITE A PROBLEM? NO!

For years successful operators with tough, difficult, heavy-duty, on or off-the-highway hauling problems have saved time, money, men and material with

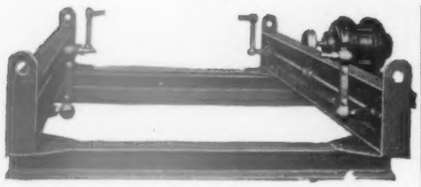
THORNTON Four-Rear-Wheel DRIVE

From coast to coast in the U. S. A. and in countries all over the world, 1½ to 3-ton trucks have been converted with THORNTON units into DURABLE, FLEXIBLE, HEAVY DUTY VEHICLES that out-pull, out-last and out-maneuver standard trucks costing double or more.

Put TWO driving axles under the load instead of one, double the gear speeds, better springing and load flotation, with vastly superior tractive ability . . . all of this for less money!

Government approval? Yes, up to now. But these things are subject to change . . . so act quickly. Contact your nearest Truckstell-THORNTON dealer, or wire factory direct. Trained men will engineer this equipment to the requirements of YOUR PARTICULAR JOB.

THORNTON TANDEM CO.
8707-8779 GRINNELL AVE. DETROIT, MICH.
Manufacturers also of the THORNTON automatic-locking DIFFERENTIAL
"When you need TRACTION you need THORNTON"



YES SIR—

FULLY CONTROLLED MOTION!

This patented equalizer assembly, connecting the body to base frame, CONTROLS the circular motion of the screening body of a SECO vibrating screen.

Without such control the maximum efficiency of the circular throw from a positive eccentric drive, is lost.

SECO Vibrating Screens
Are More Efficient

Screen Equipment Co.
INCORPORATED
9 LAFAYETTE AVE BUFFALO, N.Y.

the electro-cooler because the unit is built compact, factory-assembled and factory-tested at high pressure to minimize the possibility of future maintenance. If the transformer has radiator valves, the unit can be removed without draining the transformer oil, and parts can be replaced without delay in transformer operation.

The Electro-Cooler consists of a radiator-type cooler and a special pump with motor enclosed. These are connected by piping to the standard radiator valves at the side of the transformer. No stuffing boxes are required in the special pump, and the motor is self-cooled and self-lubricated.

TRADE NEWS

A specification covering the construction of the hot-mix type of sand-asphalt base and surface courses has been adopted by the Asphalt Institute and promulgated as its "Specification A-5."

Copies are available, without charge, upon request to the Asphalt Institute, 801 Second Avenue, New York.

Rear Admiral Emory S. Land, chairman of the U. S. Maritime Commission, on September 2 awarded the Maritime Commission "M" burgee to the Barberton works of the Babcock & Wilcox Company, New York. The award represents the commission's recognition of outstanding achievement.

Trade Literature

Plain Facts on Wartime Care of Rubber V-Belts. 16 pages. Allis-Chalmers Manufacturing Company, Milwaukee.

Mono-Fibrik . . . Plastic Monolithic Firebrick. 24 pages. Mexico Refractories Company, Mexico, Missouri.

Industrial Wire Cloth. 4 pages. Buffalo Wire Works Company, Buffalo.

Buell van Tongeren System of Industrial Dust Recovery. 28 pages. Buell Engineering Company, New York.

Magnolia Bearing Metals. 8 pages. Magnolia Metal Company, Elizabeth, New Jersey.

Beaumont Vibro Automatic Weighing Scale. 4 pages. Beaumont Birch Company, Philadelphia.

Rex Flat Spray Nozzles. 6 pages. Chain Belt Company, Milwaukee.

65-Ton Diesel Electric Industrial Switching Locomotive. 16 pages. General Electric Company, Schenectady, New York.

Amsco Manganese Steel Wheels and Rollers. 24 pages. American Manganese Steel Company, Chicago Heights, Illinois.

How the Sand, Gravel and Rock Products Industry Is Cutting Operating Costs. 40 pages. Gates Rubber Company, Denver.

Vibrex Vibrating Screens. 12 pages. Robins Conveying Belt Company, Passaic, New Jersey.

Symons Cone Crushers. 28 pages (Bulletin 110). Nordberg Manufacturing Company, Milwaukee.

WAR PRODUCTION DEMANDS GREATER HAULING POWER

use PORTER DIESELS

Be sure that your locomotive will haul those extra cars added by today's production. PORTER Diesel Electric Locomotives are ruggedly built and powered to haul the heaviest loads.

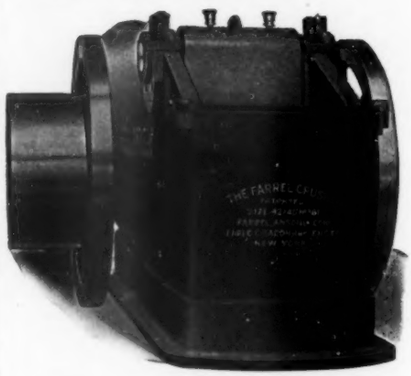
Power and maintenance economy, too, are characteristic of PORTER construction.

H. K. PORTER COMPANY, INC. builds a locomotive for your specific haulage operation. Write for information.

H. K. PORTER COMPANY, INC.
PITTSBURGH · PENNSYLVANIA

FARREL BACON CRUSHERS

Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants. Engineering Service.



EARLE C. BACON, Inc.
17 John St. New York, N. Y.

LOWEST COST PER YARD

writes the specification of a HAISS LOADER for the man who plans for the future as well as the present.

•

2-3-5 and 8 YARD CAPACITIES. Write for catalogs

HAISS QUALITY EQUIPMENT FOR 50 YEARS 1892 1942

GEO. HAISS MFG. CO., INC.
HAISS
142 Street and Rider Avenue, New York, N.Y.

October 1942

The CONCRETE MANUFACTURER

A Special Section of ... Pit and Quarry

M. L. Dague, Inc., furnished 450,000 Stearns Vibrated Blocks for the Middletown Gardens Housing Project at Muncie, Ind. Waylite aggregate was used for lightness and insulating values.

Built to last, with STEARNS VIBRATED BLOCKS

Concrete masonry units made on Stearns machines are going into important war construction work all over the country. Modern, low-cost houses like these are given permanence by the use of Stearns vibrated blocks.

While Stearns manufacturing facilities are devoted 100% to war work, we are still able to supply concrete products plant equipment to customers requiring it for necessary construction projects.

STEARNS MANUFACTURING CO. - ADRIAN, MICH.

GENE OLSEN, PRESIDENT

Complete Concrete Products Plant Equipment—Vibration and Tamp Type Block and Brick Machines, Mixers, Skip Loaders

• CONCRETE PRODUCTS • READY MIXED CONCRETE

The CONCRETE MANUFACTURER

October, 1942

A SPECIAL SECTION OF PIT AND QUARRY DEVOTED TO PRODUCTION MARKETING AND USES OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

Published by Pit and Quarry Publications
538 South Clark St. Chicago

H. W. BAUMGARTNER
President

STANLEY A. PHILLIPS
Vice-President and Directing Editor

Field Editor:
W. E. TRAUFFER

Associate Editor:
HARRY F. UTLEY

Circulation Manager:
W. T. KLUSSMAN

Advertising Manager:
JAMES E. MONTGOMERY
Telephone HARrison 8558
Chicago, Ill.

Eastern Advertising Manager:
W. A. WILSON
Room 1235, 101 Park Ave.
Telephone CAledonia 5-4438
New York, N. Y.

Central Advertising Manager:
D. R. EGBERT
859 Leader Bldg.
Telephone CHerry 4432
Cleveland, O.

Advertising Representatives:
A. C. PETERSEN
Chicago, Ill.

ROBERT W. WALKER
68 Post Street
Telephone SUtter 6706
San Francisco, Cal.
and
1709 West 8th Street
Telephone EXposition 8292
Los Angeles, Cal.

Field Representative:
H. C. FINLEY

Lightweight Aggregates Are Widely Available

A study of the development of lightweight aggregates and an analysis of those available to concrete-products makers is contained in a 26-page report issued recently by the Bureau of Mines. Designated as *Information Circular 7195*, it was written by Forrest T. Moyer, associate mineral economist attached to the Bureau.

Cinders and other natural lightweight materials, as well as manufactured aggregates made from expanded slag, shales and clay are discussed to a great extent. The report concludes with the following market summary:

"As demand for lightweight concrete is centered almost entirely in building construction, it is natural that facilities to produce lightweight aggregates would be located in or near the centers of building activity, which are the densely populated metropolitan areas. This segregation of production has set up well-defined market areas in which generally two or more lightweight aggregates are available and competing with each other.

"In the extensive building-material markets of the eastern coastal area from Boston to Norfolk, demand for lightweight aggregates has long been filled almost entirely with cinders, which, in some cities, have little or no competition. Somewhat limited quantities of air-cooled slag from furnaces in New Jersey and eastern Pennsylvania are available for the New York and Philadelphia markets, and this aggregate is reported to be well-established in the Baltimore area, where supplies are adequate. Processed aggregates first became available several years ago in the New York and Philadelphia areas when plants producing Pottsco (now Celocrete) and Waylite-Superock started operations in southeastern Pennsylvania. Up to the present, expanded-shale aggregates have entered the eastern markets only as occasional shipments of Haydite for special uses.

"Ample supplies of lightweight aggregates are available in the Buffalo-Rochester area, for cinders, air-cooled slag, Haydite, and Celocrete are competing here. An identical situation exists in Cleveland, where the same four aggregates have been available in commercial quantities for a number of years. In the Pittsburgh district, local supplies of cinders, air-cooled slag and Celocrete continue to satisfy the demand for lightweight concrete materials. The similar needs of the Detroit market are filled by the locally available cinders and air-cooled slag. The Chicago area is better supplied with lightweight aggregates than any other market in the country, and demand is said to be increasing steadily, especially for the processed materials. In this area, cinders, air-cooled slag, Haydite, Celocrete, and Waylite are firmly established as materials for lightweight construction. Requirements for lightweight materials in both the St. Louis and Kansas City regions are filled from locally available supplies of cinders and Haydite.

"In nearly all southern metropolitan areas, only limited quantities of lightweight aggregates are available. The outstanding exception, the Birmingham district, has ample supplies of cinders, air-cooled slag, and Superock, which have all become firmly established structural materials. Air-cooled slags also are available in the Roanoke, Knoxville, and Nashville markets, in which cinders are the only competing lightweight aggregate. Cinders are used for building purposes in a number of other southern cities where local supplies may be had.

"In the Rocky Mountain States, pumice and other lightweight volcanics are easily available to practically all centers of building activity and are used commercially in Albuquerque, Denver, and Salt Lake City. Air-cooled slag and cinders are competing with pumice in the lightweight markets of the Denver area. On the Pacific Coast, pumice is the most widely used lightweight aggregate. It is prominent in the San Francisco area, where it is sold in competition with Gravelite and Haydite under the trade name of Basalite. In addition to pumice, the diatomaceous materials — Diacrete, Raylite, and Airrox—are available in the Los Angeles area. Haydite, pumice, and cinders comprise the accessible lightweight aggregates in the Seattle market."

Neither Quake Nor Depression Daunts Hollywood Block-Maker

A view of the plant and part of the yard.

THE concrete-products industry in the vicinity of Los Angeles, California, has had a series of ups and downs which have kept it from attaining the prosperity it has enjoyed in other sections. J. W. Schulze, a retired contractor and business man, decided to enter this field 12 years ago for something to do just at a time when the demand for concrete building blocks, or tiles as they are known locally, was growing rapidly. He started out on leased property with a small vibrating block machine as the Graystone Tile Company. Business was so good that he soon added an early model Flam machine. Then came the earthquake which wrecked so many buildings made of both concrete and clay tile. This catastrophe, together with the depression then nearly at its worst, gave concrete tile a set-back in this area from which it is only now recovering.

Mr. Schulze was one of the few manufacturers who survived this blow and the depression and, with the others, a system of reinforcing was developed which makes tile walls practically earthquake-proof. This, together with the other inherent advantages of concrete building units, gradually restored them to their former popularity. Business became so good that in September, 1941, Mr. Schulze put in operation a new plant at 7040 Lankershim Boulevard, North Hollywood on a 15-acre property he had purchased. In this plant he installed a new Flam vibrating block machine and an older unit. For some time both plants were operated to keep up with the demand. When the ban on private building went into effect, however, the old plant was shut down and all the production is now confined to one machine in the new plant.

A full line of tile is made with 4- by 8- by 12-inch, 4- by 6- by 12-inch and 4- by 8- by 16-inch sizes being the most popular in the order named. A 4- by 12- by 12-inch unit is also becoming popular because of the deeper reveal for architectural effects made possible by a 12-inch wall. This unit is also growing in demand for commercial structures. There has never been any demand here or elsewhere on the West Coast for the 8-inch-high block which is standard in the East and Middle West.

The aggregates used are local sand and pea gravel which are discharged from a truck on a ramp into two 40-ton ground-level storage bins. These aggregates are discharged through lever-operated slide gates into the new 24-cubic foot Besser skip bucket which also serves as a volumetric measuring box. The cement is measured from sacks into the new 25-cubic foot Besser mixer

The 25-cubic foot mixer.

which is driven through Gates V-belts. The concrete is drawn as needed to the Flam machine which has a capacity of 3,000 of the 4- by 8- by 12-inch units in 8 hours and of other sizes in proportion.

Wooden pallets are used and the finished units are ejected on these and transferred to roller-conveyors

(Continued on page 79)

The attractive plant office helps to advertise the company's products.

From Hand-Operated Automatic Plant Over

1. The new and modern plant of the Quintel Concrete Products Company, Detroit, is the culmination of 18 years' growth by this firm. Starting in 1924 with a hand-operated machine, Fred Quintel, who heads the concern, has become one of the leading makers of concrete blocks in the Detroit area. The new plant, of steel-and-concrete construction, was designed by Mr. Quintel in co-operation with the Palmer-Bee Company which supplied the elevators, conveyors, weigh-larry, scales and other equipment.

2. Special 16-cubic yard truck-trailers bring in the aggregates consisting of flat and sharp sands and pea gravel, discharging over a grizzly into a steel hopper. A short inclined flat belt-conveyor (see picture below) equipped with skirt-boards carries the aggregates to the boot of a 65-foot elevator. Lifted to the top of the plant, they are distributed by a short belt-conveyor equipped with plows to divert the material into either of three 33-cubic yard steel bins. Another 65-foot elevator carries the bulk cement up to the 216-barrel cement bin.

3. LEFT—A 40-cubic foot weigh-larry mounted on rails and served by a Fairbanks Morse springless dial scale batches the dry mixture, water being added when the materials are discharged into the 40-cubic foot Besser mixer. A 20-horsepower Fairbanks-Morse motor drives the mixer through five strands of Gates Vulcorope.

Machine to Modern Period of 18 Years

4. The Besser Super Vibrapac machine turns out all the blocks, being situated on the ground floor directly beneath the mixer. It can produce 600 standard units per hour and is equipped with an automatic air-operated off-bearing hoist, pallet feeder and oiler. A Gardner-Denver compressor supplies the air. Units are loaded into special Chase steel racks with hinged angle-steel supports to accommodate the large plain steel pallets. Each rack has a capacity of 60 standard units, or the equivalent in larger or smaller sizes.

CONCRETE BLOCKS

Prices Effective, May 26, 1941

Plain Blocks

8x8x16 Plain Blocks	$ .12
8x8x 8 Plain Halves	.11
8x8x16 Plain Corners	.16
8x8x 8 Plain ½ Corners	.12
8x8x16 Plain Pilasters	.18
8x8x16 Plain Slotted	.18
8x8x 8 Plain Slotted ½'s	.14
8x8x16 Solid	.22
8x8x 8 Half Solid	.14
12x8x16 Plain Blocks	.16
12x8x16 Grade Blocks	.18
12x8x 8 Plain Halves	.14
12x8x12 Plain Pier Blocks	.18
12x8x16 Plain Corners	.20
12x8x 8 Plain ½ Corners	.16
12x8x16 Plain Pilasters	.22
12x8x16 Plain Slotted	.22
12x8x 8 Plain Slotted ½'s	.19
4x8x12 Plain Solid Slabs	.12
4x8x16 Plain Solid Slabs	.12
4x8x16 Hollow Slabs	.12

Rockface or Panel Blocks

8x8x16 Face Blocks	$ .17
8x8x16 Face Corners	.27
8x8x 8 Face Halves	.14
8x8x 8 Face ½ Corners	.22
8x8x16 Face Slotted	.22
8x8x 8 Face Slotted ½'s	.18
4x8x16 Face Slabs	.17

Cement Specialties

Sills 4x9x32	$ 1.15
Sills 4x9x40	1.35
Sills 4x9x36 (Also Doors)	1.25
Sills 4x9x32 Slotted	1.25
Sills 4x9x40 Slotted	1.45
Sills 4x5 Per Foot	.35
Pier Caps 14x14	1.25
Pier Caps 19x19	1.50
Pier Caps 23x23	2.25
Chimney Caps 19x19	1.00
Chimney Caps 19x23	1.50
Chimney Caps 23x23	2.00
Wall Coping 4x10 Per Foot	.45
Wall Coping 4x14 Per Foot	.60
Steps—Tread and Riser Per Foot	.85
16x16 Chimney Blocks	.40
16x20 Chimney Blocks	.50

Here is the price schedule being adhered to with little deviation by Detroit makers.

5. The two steam rooms will each cure about 4,000 8-inch blocks at a time. The plant and yard openings are closed by overhead doors, racks being taken out from either end for stock-piling. At the time the plant was visited, heat for curing was being temporarily supplied with salamanders. A boiler is to be installed, however, as soon as delivery can be obtained.

6. Until Mr. Quintel also receives the power lift-truck he has ordered, the racks are all being moved by a Lewis-Shepard hand lift-truck. Floors in the 66- by 91-foot plant structure are paved with concrete as are the runways in the yard. Deliveries are made by three company-owned flat-bed trucks—one Dodge and two Fords. Hired trucks are also used. Some of the first product turned out was used in building the Herman Gardens housing project, a large slum-clearance job on Detroit's west side.

Equipment and Layout of Tampa Plant Marked by Originality

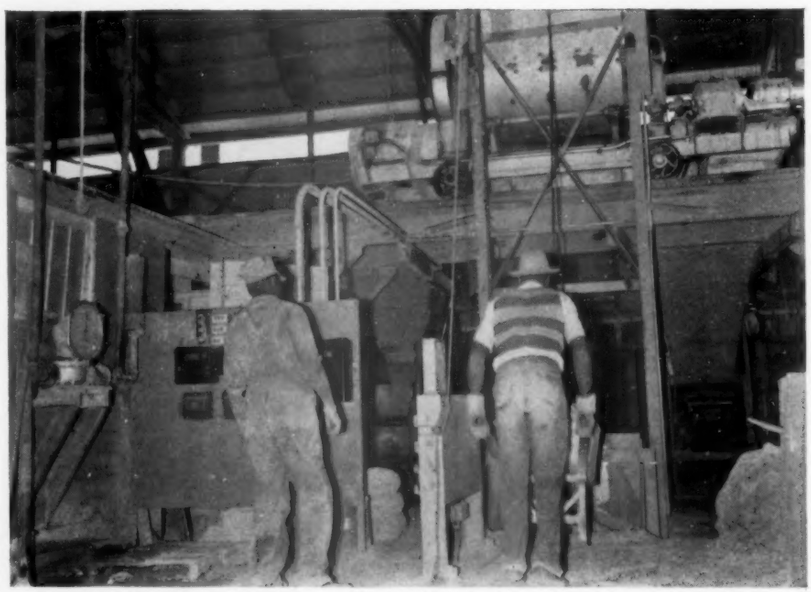
The company's modern office building in the construction of which concrete block was used most effectively.

THE concrete-products industry in Florida in recent years had prospered with the residential building boom which it took a war to stop. The producers in strictly resort areas have suffered most from the falling off of business which followed. Those in or near industrial areas or large government projects have suffered comparatively little and are devoting almost their entire output to vital war construction. In the latter class is the Tampa Sand & Material Company, which operates a modern new plant in Tampa. This company is a subsidiary of the Cone Brothers Contracting Company, which does road and bridge construction, excavating, dredging, etc.

The Tampa Sand Company had for some years operated an old plant with three tamper block machines but in 1940 a new and larger plant, which has few equals for simplicity and economy of operation, was built. Now the old plant is used only when additional capacity is needed.

The Florida hard rock and sand, which are used as aggregates, are discharged from cars on a trestle into six 1-car-capacity ground-level bins, from which both plants are supplied. The cement is received in sacks and is unloaded from cars on the same trestle down a chute into a storage room. In the new plant the cement is dumped from sacks and the aggregates from barrows into a Concrete Transport Mixer Company 18-cubic foot skip bucket. The aggregates are first weighed on a Howe scale.

The skip discharges these materials into the Concrete Transport 24-cubic foot traveling mixer. The latter is mounted on a car which travels on rails the full length of the building and supplies concrete through chutes to the five Appley vibrating block machines and a Dunbrik machine. A reversible 5-horsepower motor propels the mixer car and a 3-horsepower motor is used to dump the mixer which rights itself by gravity. Both motors are operated by push-buttons on the ground floor. Water is measured into the mixer by a Neptune water meter.



After weighing, aggregates are dumped into a skip which lifts them to a traveling mixer.

A view of the plant with car-loads of aggregate and cement on trestle for unloading.

Until the residential boom collapsed the plant was operated two 10-hour shifts daily to keep up with the demand. Now only one 8-hour shift is necessary. Each of the block machines turns out about 800 standard 8- by 8- by 16-inch blocks daily. The brick machine is not operated

The concrete-brick machine. Traveling mixer above.

all the time but its output averages 5,000 bricks daily. Most of the bricks sold are used for back-up work. An Anchor hand stripper was recently added to make solid block.

At one time the 5- by 8- by 16-inch block was the most popular but the standard 8- by 8- by 16-inch unit is now favored because of its greater economy. A total of 117 different varieties of blocks and tiles can be made on the Appley machines and all the different cores and pallets required are carried in stock. Among the more popular units made are the 4-, 5- and 8- by 8- by 16-inch blocks and the ¼-, ½-, and ¾ blocks to go with them and 8-, 12-, and 16-inch jamb blocks for metal and wood sash and their fractional units. Curing is done in six kilns for which steam is supplied by a Fitzgibbons boiler. Barrett-Cravens lift trucks are used for transporting the blocks to the kilns and to out-door storage.

W. F. Brice is superintendent of this plant and contributed the latest improvement to it. This is an oiling pit for the pallets. A rack full of pallets is placed over the pit and they are sprayed with oil from a 50-gallon sump by means of a 1-horsepower pump and a hose. The excess oil drains from the pallets back into the sump.

Mixer discharging into hopper of one of the block machines.

Graystone

(from page 75)

leading to the storage yard. There they are stacked 7-high on the pallets and remain there over night. The following morning the pallets are removed and the blocks are covered with sacks and sprayed for several days.

The very dry 1:7 or 1:8 mixture used yields 48 of the 4- by 8- by 12-inch units per sack of cement. Occasionally slump tiles are made when especially artistic effects are desired. These are produced in heights from 1½ to 3½ inches.

The company also sells a complete line of masonary building materials including sewer pipe, flagstones, building stones, etc. These are stored in warehouses near the plant. All the deliveries of these materials and the blocks are made by a fleet of four 2½- and 3-ton General Motors trucks. Three of these have platform bodies. The fourth truck has a dump body and is used to haul aggregates to the plant.

As the plant is located on one of the main streets leading north out of the Los Angeles area its appearance is an important advertisement of the company's products. The plant office is also a very attractive structure built of concrete units and having a fireplace, steel-sash windows, flagstone walks, etc. Because most home construction in this area is promotional and wood is getting scarcer and more expensive, Mr. Schulze believes that concrete-unit construction now has a price advantage over wooden construction.

A block being ejected on a wooden pallet.

Scraping off a block after vibrating and before ejection.

The new Butler portable concrete hopper has been brought out to supply the need for a readily portable, inexpensive means for eliminating the usual delay when charging wheelbarrows or buggies from truck-mixers. By using this hopper, truck-mixers are able to make more trips per day, making possible more production with fewer units. The hopper is of heavy steel construction, and is mounted on two rubber-tired wheels. The two-wheeled design is stable, can be pulled over the highway at high speeds, and can be set up for operation quickly. They are available on suitable priority ratings in sizes of 2, 3, 4, and 5 cubic yards.

The CONCRETE MANUFACTURER

Pneumatic Pump and Pipe-Line Deliver Cement to Ready-Mix Plants in Bronx

New plant with separate cement bin at left; old plant at right.

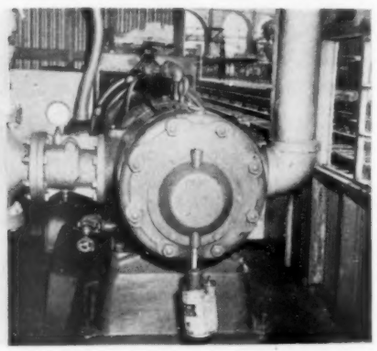
FOR many years the New York metropolitan area has set a standard for the ready-mixed-concrete industry in efficient large-scale production. As a result a large percentage of the vast quantity of concrete used there comes from the many plants in this area. The size or nature of a construction project is seldom a drawback, for ready-mixed concrete has been used in many of the famous bridges, tunnels and subways and in the foundations of even the largest skyscrapers. The experience acquired by these producers has been invaluable in producing the concrete for huge war projects in remote sections of the country.

One of the leading producers is the firm of James A. Norton, Inc., which operates an interesting combination of plants at 169th Street and Harlem Avenue on the Harlem River in New York. From these operations has come the concrete used in the construction of some of the most important building projects in the city. Many of the more recent projects have been vital to the war effort. The company has also gone far afield to produce concrete for such projects. The most important of these jobs is located at a large air ordnance plant at Baraboo, Wisconsin, where concrete has been produced in large quantities for the past six months. This plant is capable of weighing out enough material for six cubic yards of concrete at a time, has a 300-barrel auxiliary cement bin and a storage bin of 1,500 barrels.

The 6-inch cement pump and 75-horsepower motor.

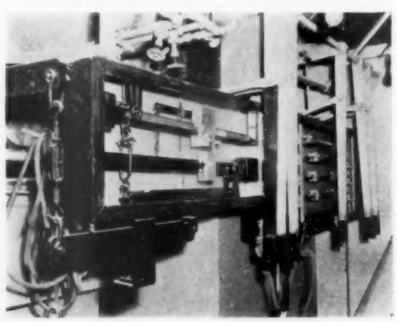
Another complete plant, similar to the one at Baraboo, at Alexandria, Virginia, is serving the Metropolitan Housing Project.

This company was formed in July, 1938 by a group of men experienced in the production of ready-mixed concrete. At that time they purchased the property of the High Bridge Concrete Corporation, which consisted of a central-batching plant and ten 5-cubic yard Chain-Belt Rex truck-mixers. This plant had been built in 1929 to supply concrete for the Grand Concourse extension of the subway system in the Bronx. The aggregates for these operations are brought in on barges and the first step taken by the new owners was to replace the old traveling crane used for unloading them with one of greater capacity. Sacked cement had also been delivered in barges and unloaded by the crane to the plant, where it was dumped manually into the truck-mixers. This system was replaced by a Fuller-Kinyon system for unloading bulk cement from railroad cars. In June, 1940 a new Blaw-Knox batching plant was installed to supplement the old plant and in May, 1941 an auxiliary 1,200-barrel Blaw-Knox bulk-cement storage bin was added.



Rotary compressor which supplies air to the cement pump.

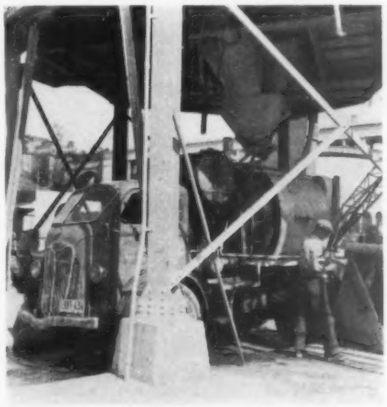
The expansion of the company's fleet of truck-mixers has kept pace with the plant expansion. In May, 1939 a fleet of 19 Jaeger 5-cubic yard truck-mixers, now rated 5.75 cubic yards, was purchased. Three of the ten original 5-cubic yard gasoline-powered mixer-trucks were traded in on these. Recently 12 more 5.75-cubic yard Jaegers were purchased, making a fleet of 38 machines. Of these three are mounted on Autocar and all the others on Mack truck chassis. All are powered by Cummins Diesel engines.



Scales and batching equipment in the new plant.

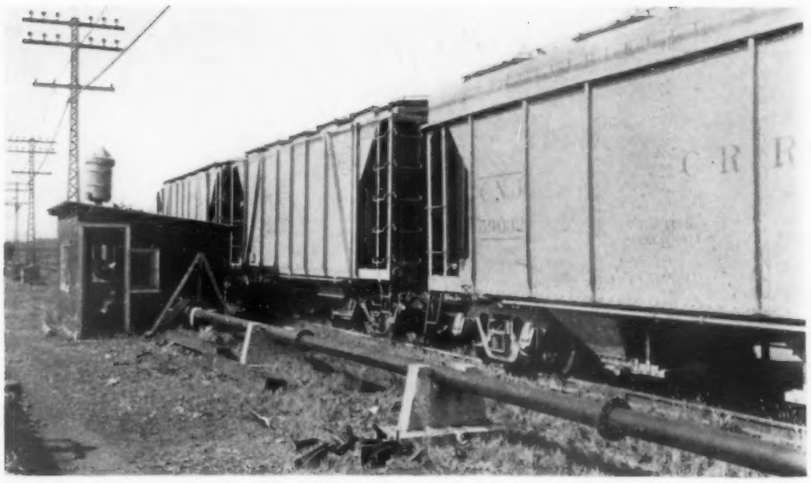
The company maintains a garage for 38 trucks and a complete machine-shop where repairs are made to all types of equipment.

As there is little space for aggregates storage at this yard, a steady stream of barges is unloaded as needed. A Wiley Whirley, with a 100-foot boom and a 2-cubic yard clam-shell bucket, can unload from any of 5 barges at the dock to the bins of either of the two plants. The aggregates usually kept in storage include ¾- and 1½-inch sizes of gravel and crushed stone, grit, sand, and cinders for light-weight floor construction.



Charging a truck-mixer at the new plant.

With the present facilities five different brands or types of bulk cement can be carried. Cement is discharged from special cars to the 6-inch Fuller-Kinyon Type C pump which discharges it through a 600-foot line to any one of the three cement storages. Air for the pumping system is supplied at 20 pounds pressure by a Fuller Type C-135 rotary compressor.



Bulk-cement cars being unloaded. Pipe-line carrying the cement to the plants in foreground.

The original dual batching plant has a cement bin with two 375-barrel compartments. Aggregates are stored in two 4-compartment Butler steel bins with a combined capacity of 1,000 tons. Under each bin is a 5-cubic yard aggregate-weighing batcher equipped with a Howe dial scale. Water is measured from Chain-Belt Rex tanks and cement is measured at a second stop by Butler 3,000 pound weighing batchers.

The new one-stop Blaw-Knox batching plant has a 4-compartment, 240-ton aggregate-storage bin and two 500-barrel cement compartments. The weighing is done by a 5-cubic yard aggregate batcher and a 3,000-pound cement batcher, both equipped with Howe beam scales.

The management believes that straight-run loading under these three plants would make it possible to batch 2,500 cubic yards of concrete in 8 hours. The old dual plant alone has produced 1,200 yards in that period and he believes the new plant can do even better. Since the new plant was added, however, the demand has never exceeded 1,500 cubic yards daily.

A 117-horsepower boiler supplies the steam for hot mixing water and for heating the aggregates in cold weather. The steam lines to the bins are insulated with saw-dust inside a wooden framework with the result that little heat is lost.

Two truck-mixers taking on cement and aggregates at the old plant.

Revolving crane on barge unloading aggregates from other barges alongside.

Seek Graphite Deposits in Upper Michigan

A brief reconnaissance of the region south of L'Anse, in Baraga County, Michigan, for indications of graphite deposits is being made by Dr. Justin Zinn, of Michigan State College, at the direction of the Michigan Conservation Department's Geological Survey.

The national need for knowledge of more graphite reserves prompted the survey's temporary transfer of Dr. Zinn from the copper deposit exploration in Ontonagon County. Crucible graphite is a critically short commodity, and special steps have been necessary to conserve supplies.

MOVE MORE TONS WITH LESS LABOR

Sauerman Scraper Stockpiling

Thousands of producers of mineral aggregates proclaim their satisfaction with SAUERMAN Scrapers and Cableways for digging, conveying and stockpiling.

First cost of a SAUERMAN machine is reasonable, operation is an easy one-man job, maintenance expense is small.

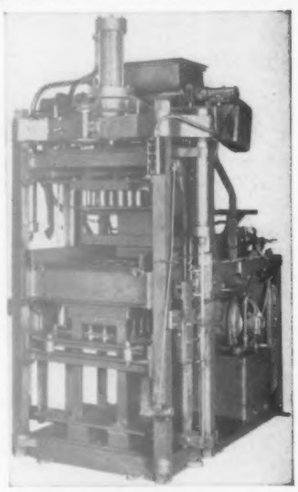
SAUERMAN engineers will gladly study your stockpiling and digging problems. Their advice may help you to increase your profits. Investigation costs you nothing.

Write for catalog

SAUERMAN BROS., INC.
534 S. Clinton St., Chicago

SAUERMAN
LONG RANGE MACHINES

Why not BUY
the LATEST
FASTEST
and BEST
PRODUCTION BLOCK MACHINE



HYDRAULIC
VIBRA PRESS

Write for information.

KENT MACHINE CO.
Cuyahoga Falls, Ohio

Distributes Concrete by Pump to Save Tires

The Ready Mix Concrete Corporation, Indianapolis, recently obtained a sub-contract to supply the concrete for the new Perfect Circle Company plant built by the Carl M. Geupel Construction Company, also of Indianapolis.

In order to save tires on its truck-mixers, company officials decided to handle the distribution of the concrete by means of Pumpcrete equipment. Two Pumpcrete machines were installed side by side on the job site. Each had a capacity of 20 cubic yards of concrete per hour.

A portable mixing plant was erected on the site. A crane kept the aggregate bins filled. From these bins aggregates were carried by belt-conveyor to the hopper which charged the 2-cubic yard mixer. The mixer emptied directly into the hoppers of the Pumpcrete machines. Concrete from these machines was pumped out to the pouring positions through pipe lines 6 inches in diameter. Bulk cement, supplied by the Kosmos Portland Cement Company, was used.

Ash Grove Contributes 100 Tons of Scrap

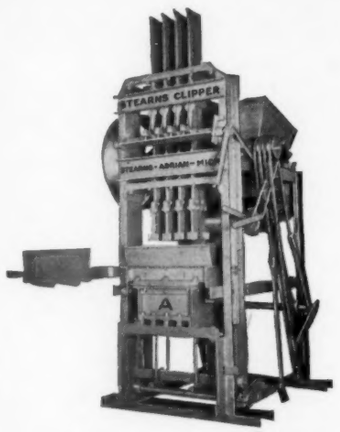
The Ash Grove Lime & Cement Company plant at Louisville, Nebraska, contributed approximately 200,000 pounds of scrap metal in two weeks time to the Nebraska scrap-metal campaign to aid war production, according to A. K. Frolich, superintendent of the plant and salvage-campaign chairman at Louisville.

Much of the scrap came from the extensive land holdings of the Ash Grove company and included several miles of old railroad track, iron and steel cars formerly used to transport rock, and an old 40,000-pound crusher. The scrap was obtained from abandoned workings.

Marquette Defendant in $1,000,000 Suit

The Marquette Cement Company has been made defendant in a suit asking damages of $1,000,000 which has been filed in circuit court at Ottawa by Barney Ernat of Oglesby, Illinois.

The plaintiff charges that the Marquette company, without authority, has removed limestone from his property by tunneling. The bill estimates the amounts of such limestone the complainant has removed to be at least 1,500,000 tons.



The Clipper Stripper, shown above, available in 5 models, is only one of the popular machines in the ANCHOR Line of Complete Equipment for the Concrete Products Plant. ANCHOR Engineering Service in the design of new plants or revamping older operations is nationally famous. Consult us before you buy equipment or modernize your plant . . . it costs no more.

Hobbs block machines, Anchor tampers, Anchor, Jr. strippers, Stearns power strippers and Joltcrete, Stearns mixers and pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Ideal, Universal, Stearns, Blystone mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Friel, Manager Columbus, Ohio

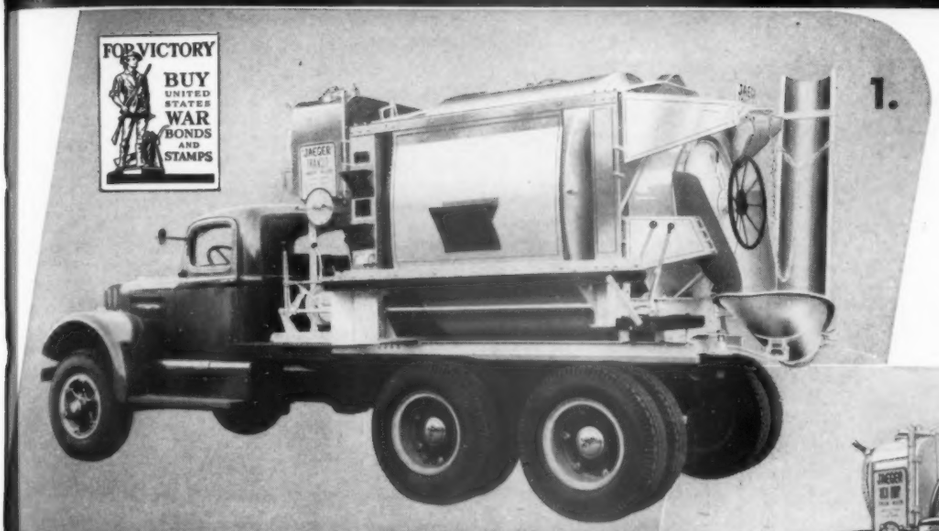
LESS DEAD WEIGHT

COMMERCIAL CORED STEEL PALLETS ARE LIGHTER IN WEIGHT

In one day's production of two thousand 8" blocks, the plain pallet user handles approximately 108,000 pounds more pallet weight than the cored pressed steel pallet user and 88,000 pounds more pallet weight than the cored cast iron pallet user. Or equivalent in human effort to handling two carloads of material *—every day!*

THE COMMERCIAL SHEARING AND STAMPING CO.
YOUNGSTOWN, OHIO

Only JAEGER Equips You to Meet EVERY Ready-Mix Demand

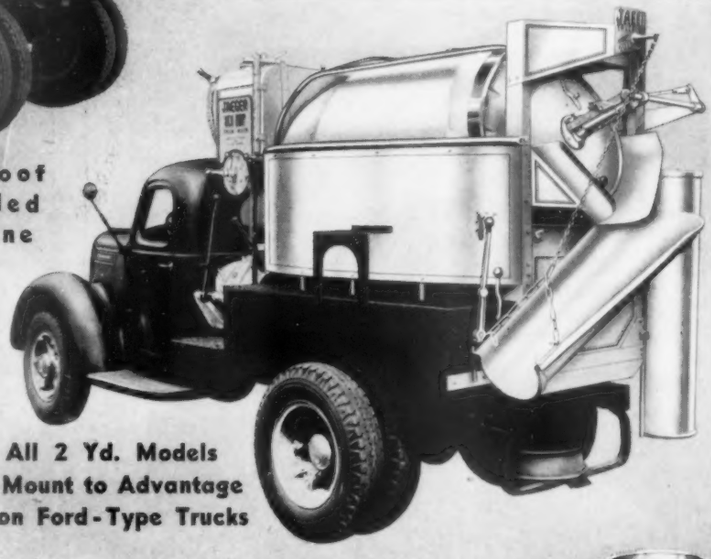


1.

Standard LOW CHARGE

Type: Lowest, most economical to load; fastest on the market to mix and discharge — produce maximum daily yardage of proven higher strength concrete. Sealed drum meets any specification. Sizes 2 to 8 cu. yds.

All Jaegers Have 2-Speed Shock-Proof Transmission—Vacuum Cab Controlled Truck Engine Drive or Separate Engine



2.

All 2 Yd. Models Mount to Advantage on Ford-Type Trucks

HIGH DUMP Types:

(2) Top Loading Models with "Sealed Drum"

(3) Or Combination Top and End Loaders (Pat'd)

Far outselling all other high discharge truck mixers today because they are fastest to load, mix and discharge any slump concrete — and are the only high discharge truck mixers that meet every specification and job condition.

"Sealed Drum" Models take full load in one quick drop through the top. Fast Vacuum-Controlled Discharge Door seals against loss of moisture and heat in winter concrete.

Jaeger End Loading Hopper Attachment (specially adapted to older or temporary plants not equipped for ribbon loading) offers many advantages over all other end loaders — and does not interfere with use of Top Loading Door where specified by engineers. (See details at right.)

Both types are built in 2, 3, 4 and 5 yd. sizes.

Jaeger Charging-Discharging Hopper Attachment Permits Top or End Loading in Order to Meet Conditions - - -

3.

The only end-loader which does not constrict drum opening and slow up charging and discharge. One quick turn of hand wheel opens Discharge Gate — no need to move entire Hopper (requiring many turns of a wheel) — no second seal to leak or wear.

JAEGER PORTABLE HOPPER

Saves Truck Mixers Waiting—Means 25% More Payloads per Day on Average Job. Tows to job behind truck mixer — takes full 2 or 3 yd. batches. One hopper serves almost any job.

THIS HANDY BLANK BRINGS YOU FULL INFORMATION

Complete Data, Models, Specifications, Prices, Terms

THE JAEGER MACHINE COMPANY
602 Dublin Avenue, Columbus, Ohio

Send us newest information on ☐ Standard LOW CHARGE Truck Mixers, Agitators, ☐ HIGH DUMP Models, ☐ Portable Hoppers, ☐ Auto-Pavers and Spreaders, ☐ Pumps, ☐ Mixers, ☐ Hoists, ☐ Carts.

Name_____

Address_____

WAR PRODUCTION PROJECTS NEED TRANSPORT MIXERS

EARLY DELIVERIES MADE ON HIGH PRIORITY RATED ORDERS

One of thirty Transport Mixers that truck mixed 400,000 cu. yds. on a midwestern Ordnance Plant.

The speed required by the war program demands early delivery on construction projects. After delivery the contractor must have concrete placed in a hurry.

Transport Mixers Answer This Demand!

Full open top design for fast loading—Revolving helical mixing blades—mixing while loading—mix faster and produce more uniform concrete—positive water control—combination side and rear discharge for ease of placing concrete—inexpensive to own.

Call or Wire for Delivery Date

CONCRETE TRANSPORT MIXER CO. INC.

660 Rosedale Ave.. DELmar 3900, St. Louis, Mo.

SUPER STRENGTH

. . . AND YET IT'S PORTABLE

●Neff & Fry bins are built of super concrete staves reinforced by steel hoops. This skyscraper construction means strength . . . yet those quickly erected bins can be quickly dismantled as well as moved to a new location. Write today for complete details.

THE NEFF & FRY CO.
CAMDEN, OHIO

Neff & Fry Storage Bins

Advertise your wants and surplus equipment in

PIT and QUARRY

TARGET FOR TONIGHT

. . . *Your Business?*

Maybe they won't actually come and drop a *bomb* on your business, but the Axis war lords have their eye on it, just the same. They want to wipe it out as a competitive force—or take it over lock, stock, and barrel. Here is a threat that you can reply to *now*, today, and in no uncertain terms—by buying War Bonds to the very limit of your powers, that our armed forces may have the guns, tanks, and planes they need to crush the Axis *once and for all.*

THE GOAL: 10% OF EVERYONE'S INCOME IN WAR BONDS

Every American wants the chance to help win this war. When you install the Pay-Roll War Savings Plan (approved by organized labor), you give your employees that chance. For details of the plan, which provides for the systematic purchase of War Bonds by voluntary pay-roll allotments, write: Treasury Department, Section S, 709 12th St. NW., Washington, D. C.

EVERYBODY EVERY PAYDAY 10%

Buy War Savings Bonds

This space is a contribution to America's All-Out War Program by

PIT AND QUARRY

Via Barber-Greenes

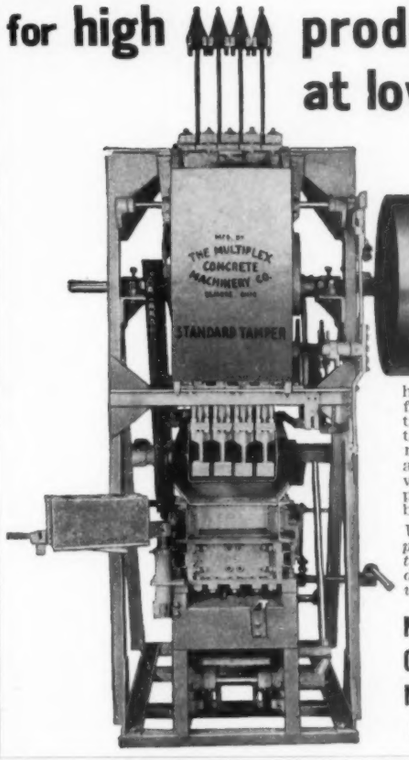
● Securing economical distribution and compact plant design, this Barber-Greene system of conveyors was worked out to screen into three sizes. Outstanding is the fact that the three B-G stockpiling conveyors are supported out of the pile by B-G steel A-frame supports, greatly aiding reclaimation operations.

● The reciprocating feeder, four belt conveyors, and A-frames are all B-G standard pre-engineered units, selected for this construction. Our engineers can help you with your material handling problems.

Q-26

BARBER GREENE
AURORA ILLINOIS

MULTIPLEX
for high production at low cost



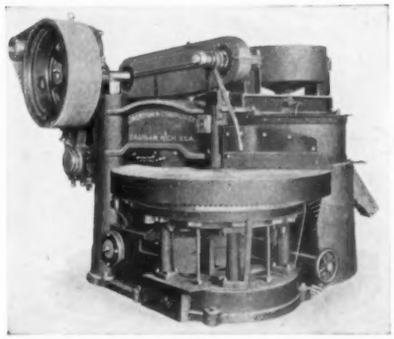
The Standard Tamper is a high production machine, operating at a low cost of maintenance. It produces a true and uniform block, and has automatic feeding and time-controlled tamping. The machine makes all sizes of units whether brick, plain, or face blocks.

Write for full particulars on this high production, low cost unit.

MULTIPLEX CONCRETE MACHINERY CO.
ELMORE, OHIO

"They're from the War Manpower Commission—they're looking ahead."

An Unsurpassed Record of Operating Performance Is the Proud Boast of J&C Brick Machines



Unsurpassed is the word, for, despite the fact that some sixteen different improved models have been brought out in the past thirty years, many of the first machines made are still in daily productive service.

Sturdy, dependable, durably built to "take it" these machines are the backbone of permanently profitable brick business. Brick made plain or with frog, WITHOUT PALLETS.

It will pay you to investigate. What others promise, J&C machines deliver.

Write for Information

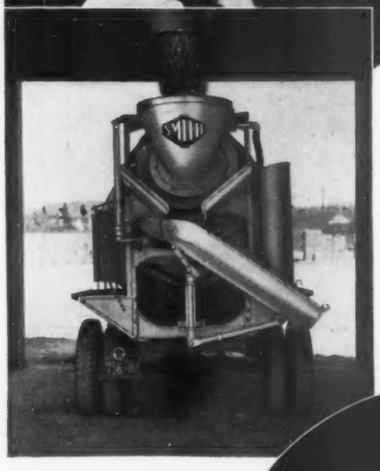
THE JACKSON & CHURCH CO.
Saginaw, Michigan

Does a Year 'Round Sales Job at Low Cost . . . 1943 Edition Closes Dec. 15

War production keeps the nation's pits and quarries busy. Owners and the men who buy are, more than ever before, using the compact, quick-reference Pit and Quarry Handbook as a production and buying guide. Catalog your products in this exclusive manual for these industries. Reach every prospect who authorizes or approves purchases in over 6,000 producing plants. Get full coverage for a full twelve months in the 1943 edition. Quick Mail coupons, featured again in the new edition, assure traceable returns on your inquiries.

PIT AND QUARRY PUBLICATIONS
538 SOUTH CLARK ST. CHICAGO

"What-Back Already? . . . I HAD NO IDEA OUR SMITH-MOBILES WOULD SAVE SO MUCH TIME!"



● Ready Mixed Concrete Operators frequently express surprise that their Smith-Mobiles mix and deliver concrete in such relatively short time . . . *faster than any previously owned truck mixers.* And yet, it's really no surprise at all. Smith-Mobiles have every modern time-saving feature . . . eliminate many tedious operations . . . give you the fastest batch cycle in the industry. Today — SPEED is an important factor — especially on big U. S. Defense jobs. So why plod along with slow, obsolete equipment? Buy modern Smith-Mobiles. Write for Catalog 198-B.

The T. L. SMITH CO.
2887 N. 32nd St., Milwaukee, Wis.

FASTER charging because Smith-Mobile has a large, roomy charging chute that makes it easy to spot mixer under bin gates. No troublesome, leaky hatch to open or close. Driver can stay in cab. Water is introduced thru feed opening. No clogged water bells buried in concrete.

●

FASTER and better mixing. Shrinking and mixing start the instant the batch enters the drum, because the drum rotates during the charging operation. Scientific blade design produces positive "end-to-end" movement of aggregates. Sealing door can be opened wide during mixing cycle. You can look in drum and actually SEE what's going on.

FASTER delivery of the concrete into the forms. High discharge . . . 27" to 34" higher than old-style truck-mixers. Permits steeper and longer distributing spout. Covers greater area even with dry concrete. Pours concrete directly into high forms, hoppers, buckets or carts. No hoist or ramp required.

SMITH-MOBILE

A 3816-1P

2 Extra Trips PER DAY PER TRUCK with POZZOLITH (Cement Dispersion)

"SAVED $8.00 PER TRUCK PER DAY" SAYS TRANSIT MIX DEALER

Project: Defense Plant in Detroit Area.
Architect: Albert Kahn, Inc., Detroit, Michigan.
Contractor: F. H. Martin Construction Co., Detroit, Michigan.

SAVING 23 minutes unloading time per truck enabled the transit mix dealer on this job to increase the number of trips per truck from 6 per day to 8 per day.

Before adding Pozzolith, the 5 sack mix had a 2″ slump and it required 30 ***minutes*** to unload the four yard truck.

After adding Pozzolith, the mix showed a 4″ slump ***even though water had been reduced about*** 16%. Easier workability and faster placing reduced unloading time to ***7 minutes.***

In addition to speeding unloading and placing, Pozzolith reduces truck cleaning time and permits a saving of 15 to 30 cents per yard on the total materials cost.

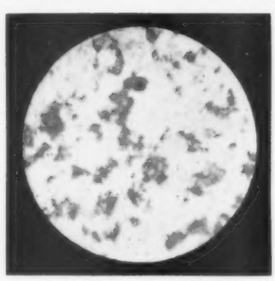
Transit mix dealers using Pozzolith are able to supply concrete which—(1) speeds construction, (2) has greater density and watertightness, (3) requires less finishing.

Write for illustrated Pozzolith booklet and complete information.

THE MASTER BUILDERS COMPANY

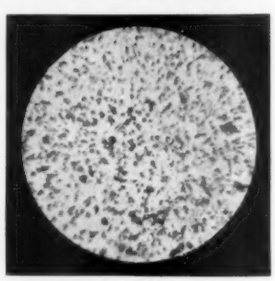
CLEVELAND, OHIO TORONTO, ONTARIO

HOW CEMENT DISPERSION WORKS



Cement suspended in water
UNDISPERSED
WITHOUT POZZOLITH

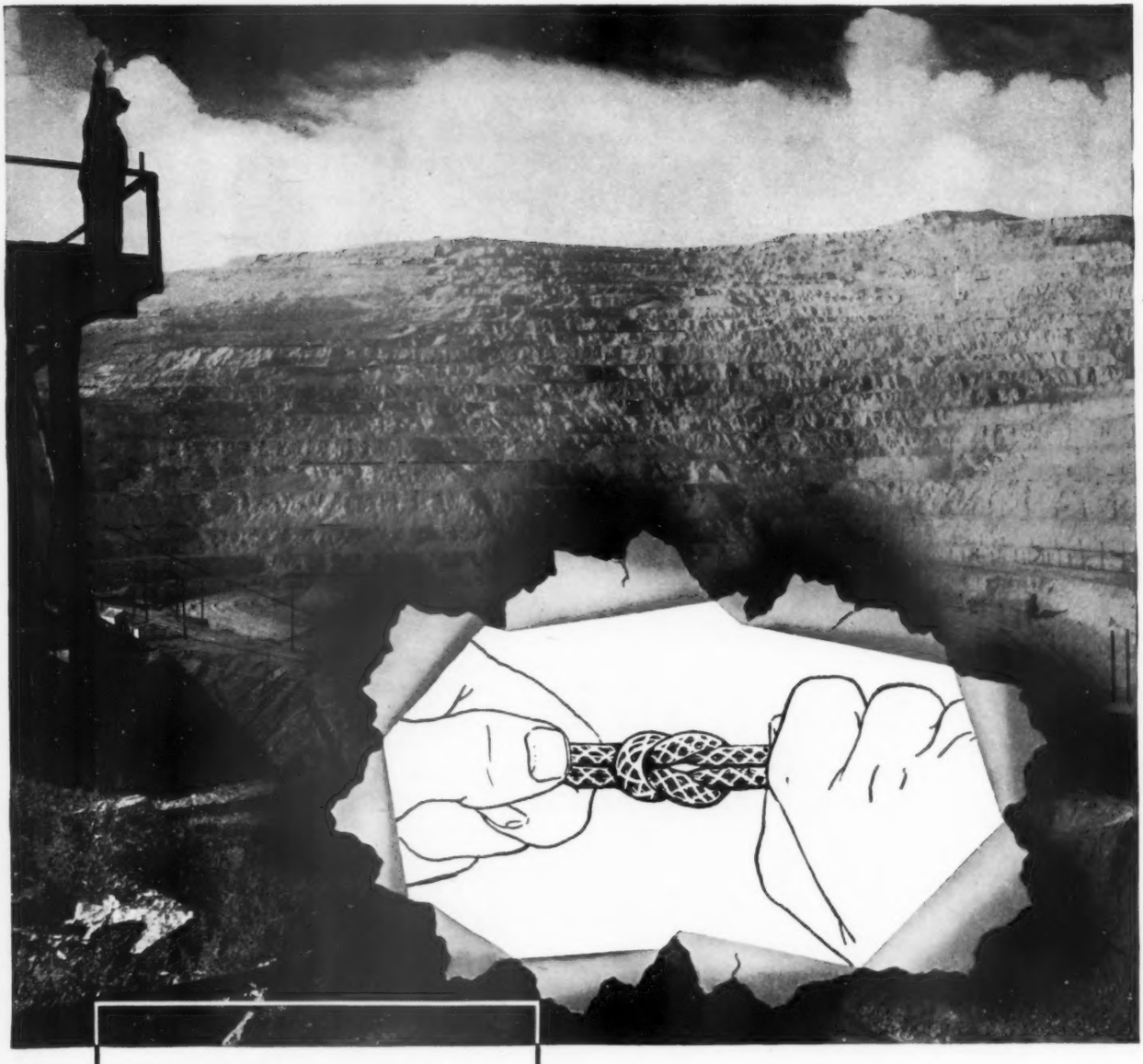
In a normal concrete mix, cement particles tend to bunch together, thereby (1) limiting hydration and (2) trapping water within the cement clumps. (See photomicrograph above).



Cement suspended in water
DISPERSED
WITH POZZOLITH

Cement Dispersion drives these particles apart and (1) exposes their entire surface area to hydration, at the same time (2) making the water entrapped in the clumps available for lubrication of the mix. (See photomicrograph above).

MASTER BUILDERS



Use a Square Knot in Trunk Lines ONLY

Yes—you can use odd length of Primacord to make up the *trunk* lines provided you tie the lengths together with a square knot, *drawn tight.* It's got to be tight because it has to pass an explosive wave that is traveling at the rate of *20,350 feet per second!*

Do not use spliced or knotted Primacord in the holes. You'll be taking a long chance on missed holes if you do, because (1) water under pressure might penetrate the exposed ends of the Primacord, and (2) dropping explosives might strike and injure the connection.

It always pays to be extra careful in every operation connected with blasting — and the proper use of Primacord-Bickford Detonating Fuse pays big dividends.

THE ENSIGN-BICKFORD COMPANY
SIMSBURY, CONNECTICUT
Manufacturers of Safety Fuse since 1836

PB-49

PRIMACORD-BICKFORD DETONATING FUSE

KENNEDY STONE PREHEATER AND DEHEATER

Saves in Lime Production

40% SAVINGS IN FUEL
20% INCREASE IN CAPACITY

Plus
A Better Product!

It has been known for many years that better lime could be made in rotary kilns than in vertical kilns, but at a considerable handicap in price.

The great length of former types of rotary kilns, sometimes exceeding 400 feet, has failed to solve the problem of efficiently reducing the temperature of the exit gases.

Now, thanks to the KENNEDY principle of preheating and deheating, it is possible to make a high-grade lime of better quality than was formerly obtainable in long or short kilns at greatly reduced cost of production.

This principle permits the effective recovery and use of the exit gases, and in actual operation has shown 40% saving in fuel, with capacity increased 20% and more.

Short kilns employing the KENNEDY method also acquire an internal glaze which lessens the wear on kiln liners, lowers the power requirements, and reduces the formation of kiln rings.

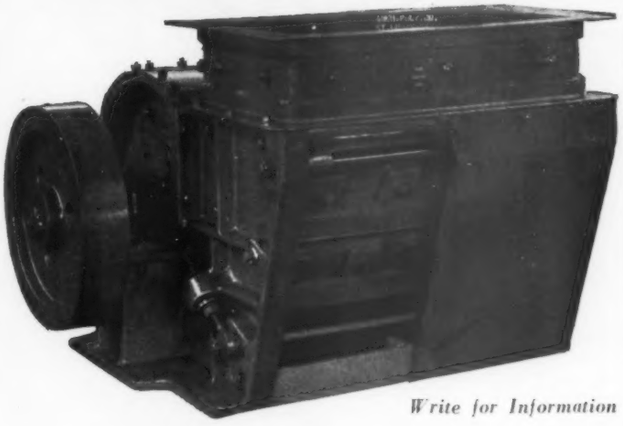
Overburned and underburned lime is practically eliminated. Coal feed and lime calcination are switchboard controlled.

KENNEDY-VAN SAUN
Also Manufactures
CRUSHING, SCREENING,
AND ELEVATING
EQUIPMENT
Pneumatic Transport Systems
Pulverized Coal Equipment
and
STEAM GENERATORS
Write for one of our Engineers to call.

Ask for Bulletins 401 and 770

KENNEDY-VAN SAUN MFG. & ENG. CORP.
2 PARK AVE. **NEW YORK, N. Y.**

ALL AMERICANS SALUTE THE AMERICAN CRUSHER



Write for Information

Today's first duty of every American is to speed up war production—and AMERICAN Crushers are doing their part by establishing their high records in rock production.

AMERICAN Crushers are built to endure long, hard service without costly delays or repairs.

AMERICAN Crushers deliver top tonnage continuously. 10 to 100 tons per hour depending on the products.

AMERICAN PULVERIZER CO.
1059 Macklind Ave. St. Louis, Mo.

NAT-ALOY WIRE CLOTH

☒ VOTE **"YES"**

For this dependable, non-crystallizing, long-wearing Screen Cloth with "Nat-Aloy" Lock Crimp Meshes.

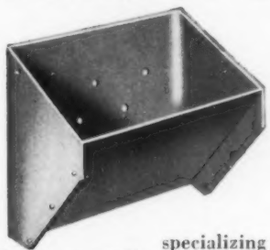
"IT'S THE PEOPLE'S CHOICE"

among profit-wise producers for precision separation and economical operation.

Stock shipments in all widths and all meshes. . . . Write for catalog No. 55.

NATIONAL WIRE CLOTH CO., Inc.
252-270 W. FAIRFIELD AVE. — ST. PAUL, MINN.

Think of STANDARD



when you need

ELEVATOR BUCKETS

Standard designs or special buckets to your order. Skilled service in a small but well-equipped plant specializing in replacement buckets. Large or small orders given prompt and individual attention. Write for prices.

STANDARD METAL MFG. COMPANY
Malinta, Ohio

You Can Rely on GOODALL "DURATION" QUALITY to Conserve Rubber . . .

In CONVEYOR and ELEVATOR BELTING . . .

where the tough, long-wearing qualities that the name GOODALL guarantees will give extra miles of hauling or lifting under severe conditions of service. Several grades are available, for light or heavy duty and all kinds of materials.

In SUCTION HOSE

. . . where "Newtype Cord" construction gives GOODALL "DURATION" Brands definite advantages found in no other suction hose . . . features that assure longer life where the going is toughest. Several grades available, to meet specific service requirements.

GOODALL "DURATION" QUALITY PRODUCTS

. . . belting, hose, boots and clothing . . . are ENGINEERED TO LAST LONGER than regular standardized emergency products. Goodall research laboratories are "building bricks out of straw" these days—developing new constructions to conserve rubber that are the envy of the industry. Customers who have always looked to Goodall for the best—the safest rubber that money could buy—who have been asking, "What will happen to us, now that you are forced to abandon those fine 'Standard of Quality' brands that were so rich in rubber" will find the answer in GOODALL "DURATION" Brands.

GOODALL KNOWS SYNTHETICS. Ever since Synthetic Rubber was commercially introduced, Goodall has been a foremost compounder of this man-made rubber. Today, we are "batching" five of the basic synthetic rubbers for everyday production runs in our factory. When new synthetic and plastic substitutes become available, Goodall-Whitehead chemists and technicians are ready with the precise formulas, timing and control techniques so necessary for safe, dependable products.

Are you afraid you may experience bad accidents due to lower standards? Are you worried that you may have to buy hose, belts, etc., over and over again because of early failures? Buy Goodall DURATION QUALITY Products . . . Remember, "You can Always Keep Going with Goodall!"

MAIN OFFICE—3 SOUTH 36th ST., PHILADELPHIA
Branches: New York . Boston . Pittsburgh . Chicago
Factory—Trenton, N. J. Est. 1870

Goodall Rubber Co. of Calif. Goodall Rubber Co. of Texas

GOODALL RUBBER COMPANY INCORPORATED

When you want **Action** *Consult* **Eagle!**

in Sand and Gravel Equipment

it pays to enlist experienced Eagle engineers to study your problems and recommend the proper type of Eagle machine suited for your purpose.

EAGLE Washers have been steadily used for years by producers, because these modern machines give record production of superior quality aggregate at rock-bottom cost.

Write for our Bulletin No. 41 which describes the full line of Eagle equipment, including Spiral Screw and Paddle Log Washers, Sand and Gravel Crushers, Sand Drags and Dewaterers, and the famous "Swintek" Screen Nozzle Ladder.

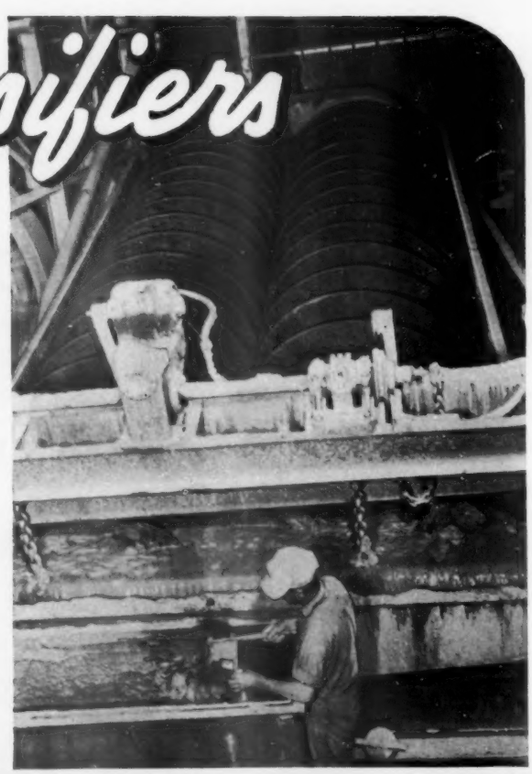
for Reliable Engineering Service ...Replacements and Repair Parts

New EAGLE Paddle-Washer, recommended for operators requiring medium capacities.

EAGLE IRON WORKS, Des Moines, Iowa

AKINS *Classifiers*

ARE DOING A JOB *in* **POTASH**



This photograph, taken recently of the closed grinding circuit in a large modern potash plant, shows an unusual metallurgical application in which a water soluble mineral is concentrated in a flotation circuit. It is another example of the wide adaptability of AKINS Classifiers. This plant uses nine AKINS machines.

If your flow sheet calls for classification, washing or dewatering, let us send you operating data on AKINS Classifiers. Ask for Bulletin 24-HA.

Other Products: **Lowden Dryers; Skinner Multiple Hearth Roasters; Ball, Rod and Tube Mills; Smelting Equipment; Crushers and Rolls; Diaphragm Pumps.**

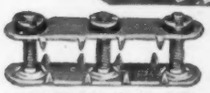
Main Office & Works: DENVER, COLO.

COLORADO IRON WORKS CO.

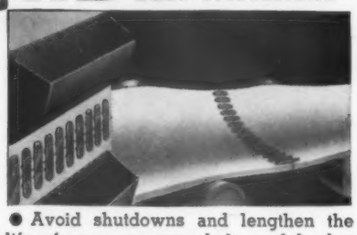
Keep your conveyor belts going with

FLEXCO

HD BELT FASTENERS



• **FLEXCO H D RIP PLATES** are used in repairing rips and patching conveyor belts. The wide space between outer bolts gives the fastener a long grip on the edges of the rip, while the center bolt prevents the fasteners from bulging.



• Avoid shutdowns and lengthen the life of your conveyor belts and bucket elevator belts by using Flexco HD belt fasteners and rip plates. Thousands of companies have stepped up the performance of conveyor lines and cut costs by using Flexco methods.

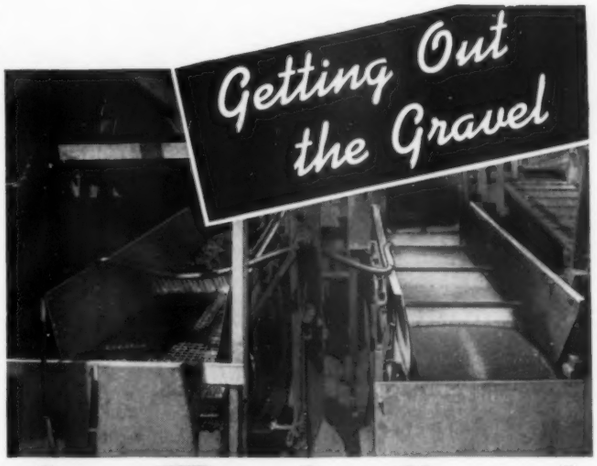
• **FLEXCO H D BELT FASTENERS** make a strong, tight butt joint with long life. Recessed plates embed in belt, compress belt ends and prevent ply separation. Six sizes in steel and alloys.

Bulletin F-100 shows exactly how to make tight butt joints in conveyor belts with Flexco HD Belt Fasteners. Also illustrates step by step the latest practice in repairing rips and putting in patches.

Write for your copy

FLEXIBLE STEEL LACING COMPANY
4623 Lexington St., Chicago

FLEXCO HD BELT FASTENERS
Sold by supply houses everywhere



for Uncle Sam!

Get this FREE BOOK!

On the Santee-Cooper power and navigation project, 50 miles from Charleston, S. C., The Becker County Sand & Gravel Co. supplied 700,000 tons of gravel and 150,000 tons of sand. Four Link-Belt Vibrating Screens handled this material at different stages working with great accuracy and at low operating cost. Their dependable performance have made them the choice of production men in all parts of the country. Ask for Book No. 1762.

LINK-BELT COMPANY
2045 W. Hunting Park Ave., Philadelphia 8809

WRITE TODAY! LINK-BELT Vibrating Screens

SIMPLICITY
GYRATING SCREENS

Use the correct basic principle of Positive Eccentric Action, produced by a solid shaft with the counter-balance machined directly thereon, placing the balance directly under the load.

Other Simplicity features are the special rubber corner supports, screen cloth in tension four ways over a doubly crowned screen deck, and sturdy all steel construction with each machine finished in every detail.

Simplicity Gyrating Screens are available in sizes from a 2′ x 3′ up to a 5′ x 12′ in single shaft assemblies; built in one, two, three, and four decks; as standard inclined types and also as low head types, where desired.

"Write for Bulletin No. 41"

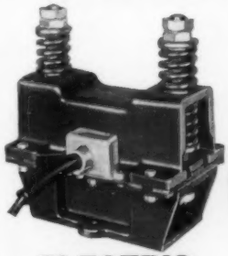
SIMPLICITY ENGINEERING CO.
DURAND, MICHIGAN

Ride on a Proven Road

• TO GREATER PRODUCTION
• AT REDUCED COSTS

with— *SYNTRON*

"HARNESSED VIBRATION"



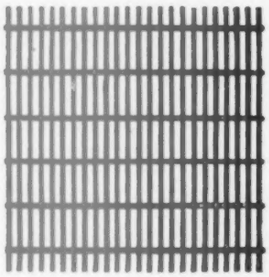
ELECTRIC VIBRATORS on Bins, Hoppers and Chutes, will make stubborn materials free-flowing.

VIBRATING FEEDERS for feeding materials, in all types of processing with rheostal control of flow.

The unlimited power of Electricity transformed into mechanical energy—to serve you.

Investigate its many advantages NOW.

SYNTRON CO. 385 Carson St. **Homer City, Pa.**



Rolled Slot

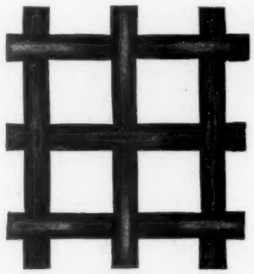
ALLOY No. 2

A super wearing Steel developed to resist the abrasion and vibration of modern screening demands.

"CLEVELAND" SCREENS

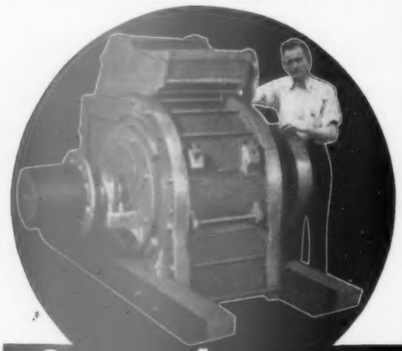
A wire cloth of guaranteed accuracy backed by fine workmanship and an effort to satisfy.

Available in Square Mesh and Rolled Slot. A trial will convince you of the superiority.



2 Mesh .162 Ga.

THE CLEVELAND WIRE CLOTH & MFG. COMPANY
574 E. 78th St. CLEVELAND, OHIO



You can do more in a "DAY"
Swing Hammer PULVERIZER

Its wide crushing range makes it serve the purpose of two or more other types of crushers. Roller bearing equipped. Write for Bulletin.

Brooks EQUIPMENT & MFG. CO.
KNOXVILLE, TENNESSEE

ROTARY KILNS
GRINDING MACHINERY
for cement, lime, ores, etc.

F. L. SMIDTH & CO.
60 East 42nd Street New York, N. Y.

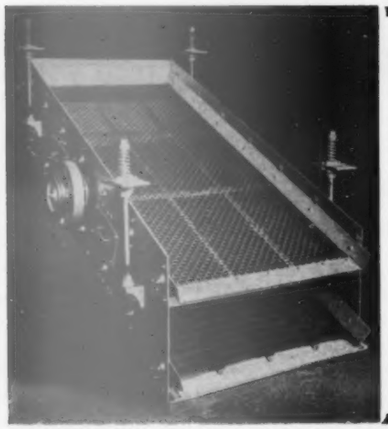
McLanahan Equipment

Single and double roll and jaw crushers, hammer mills, super dry pans, — steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists, — complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials

McLanahan & Stone Corporation
Continuously in Business Since 1835
Hollidaysburg, Pennsylvania

ROUND
SQUARE
SQUAROUND*
HEXAGON
PERFORATED
PLATE
of every description
for maximum productiveness from your vibrating screens.
*Reg. U. S. Pat. Off.

HENDRICK MANUFACTURING CO.
39 Dundaff Street, Carbondale, Pa.
Sales Offices in Principal Cities. Please Consult Telephone Directory.



DENVER-DILLON
Vibrating Screen

The Denver-Dillon Vibrating Screen has been proved by over four years of service in numerous industries. Operators report definite reduction in screening costs. "Floating circle" principle requires less than half of the average power of other means of screening. Write today for new Bulletin No. 83-B3.

Denver Equipment Co.
1400 Seventeenth Street
Denver, Colorado

New York, N. Y., 50 Church St. · Salt Lake, Utah, McIntyre Bldg.' Chicago, Ill., 1005, 69 W. Wash. Toronto, Ont., 45 Richmond St. Mexico, D. F., Edificio Jalisco.

WORRIED ABOUT SHORTAGES OF TRUCKS, MEN, TIRES, GAS?

—then read our full page ad in Pit and Quarry, September issue, and write for details at once.

You Need a DEMPSTER-DUMPSTER
DEMPSTER BROTHERS, Inc., Knoxville, Tenn.

EQUIPMENT AVAILABLE IMMEDIATELY

AT WARREN, PA.

6—16″ Steel Frame Belt Conveyors in 15′ sections, 6″ longitudinal channels, "Link-Belt" troughing and return idlers with anti-friction bearings, 85′ long c/c with motor and reduction gear drive—also 50′, 100′, 125′, 150′ and 185′ lengths.

AT COLLINWOOD, TENN.

1—6′x22″ Hardinge Pebble Mill, silex lined.
1—4′x20′ Caldwell, double shell Rotary Dryer.
1—7500 gal. Horizontal Oil Storage Tank.
1—200 H.P. DeLaVergne Horizontal single cylinder Diesel Engine, Type GH, 165 RPM.

AT GLOUCESTER, MASS.

1—22″x50″ Champion Jaw Crusher.
1—10″x20″ Champion No. 1020 Crusher, with roller bearings.
1—3 compartment Blaw-Knox Bin, 75 tons, with Butler 3-beam weigher.
1—50′x100′ Portable Steel Building.
2—20″ Belt Conveyor—28′ c/c, 52′ c/c.
1—24″ Belt Conveyor, 170′ c/c.
12—Electric Motors, all 3/60/220 v.; 100 H.P., 75, 50, 30, 25, 15, 10, 5 and 3 H.P.

AT BELLEFONTE, PA.

1—5 roll Raymond High Side Pulverizer, with vacuum separator, Raymond exhauster, cyclone collector and interconnecting piping.

AT MIDDLE GRANVILLE, N. Y.

1—20″ Allis-Chalmers Superior McCully Gyratory Crusher, feed opening 20″ wide, capacity 125 t.p.h. at 3″ setting, 275 t.p.h. at 5½″. Shop No. 8311. With or without 125 H.P. 3/60/440 v. Slip Ring motor.
1—No. 4 Kennedy Gyratory Crusher, 8″ feed opening.
1—Set 36″ dia. x 16″ Sturtevant Crushing Rolls.
2—Sets 40″x16″ Colorado Iron Works Crushing Rolls.
4—Sturtevant Bucket Elevators, two steel encased, 36′ c/c, 10x6″ buckets.
1—Sturtevant Swing Hammer Mill.
1—70′ Jeffrey Steel Pan Conveyor, 24″ wide, steel frame.

AT NEWARK, N. J.

2—6′x16″ Hardinge Conical Ball Mills, iron lined, including ball charge; one with 50 H.P. Slip Ring motor.
2—Direct Heat Rotary Dryers—5′x26′ Ruggles-Coles, 6x24′ Lancaster Iron Works.
2—Belt Conveyors—24″x105′ c/c, 30″x132′ c/c.

FOR 25 YEARS A SYMBOL OF CONFIDENCE

CONSOLIDATED PRODUCTS COMPANY, INC.
17-19 PARK ROW — NEW YORK, N. Y.
Shops and Yard at Newark, N. J., cover eight acres.

IMMEDIATE SHIPMENT LOW PRICES — NEW RUBBER — GUARANTEED HIGH GRADE

CONVEYOR and TRANSMISSION BELTING

CONVEYOR BELTING ABRASIVE RESISTANT COVERS

Width	Ply	Top & Bottom Covers
48″	— 8	— 1/8″ — 1/16″
42″	— 5	— 1/8″ — 1/16″
36″	— 6	— 1/8″ — 1/16″
30″	— 6	— 1/8″ — 1/16″
30″	— 5	— 1/8″ — 1/16″
24″	— 5	— 1/8″ — 1/32″
24″	— 4	— 1/8″ — 1/32″
20″	— 5	— 1/8″ — 1/32″
20″	— 4	— 1/8″ — 1/32″
18″	— 4	— 1/8″ — 1/32″
16″	— 4	— 1/8″ — 1/32″
14″	— 4	— 1/16″ — 1/32″
12″	— 4	— 1/16″ — 1/32″

TRANSMISSION BELTING HEAVY-DUTY— FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18″	—6	10″	—6	6″	—5
16″	—6	10″	—5	5″	—5
14″	—6	8″	—6	4″	—5
12″	—6	8″	—5	4″	—4
12″	—5	6″	—6	3″	—4

ELEVATOR BELTING HEAVY DUTY— RUBBER COVERED

Width	Ply	Top & Bottom Covers
12″	— 6	— 1/16″ — 1/16″
14″	— 6	— 1/16″ — 1/16″
16″	— 6	— 1/16″ — 1/16″
18″	— 6	— 1/16″ — 1/16″

ENDLESS "V" BELTS

"A"—WIDTH—All Sizes
"B"—WIDTH— " "
"C"—WIDTH— " "
"D"—WIDTH— " "
"E"—WIDTH— " "
Sold in Matched Sets

RUBBER HOSE
ALL SIZES FOR
AIR — WATER — STEAM — SUCTION — FIRE — WELDING ETC.

INQUIRE FOR PRICES — MENTION SIZE AND LENGTHS

CARLYLE RUBBER CO., Inc.
62 PARK PLACE — NEW YORK, N. Y.

CONCRETE EQUIPMENT

B.K. 750 bbl. Bulk Cement Bin, weigh batcher.
B.K. 325 bbl. Bulk Cement Bin, weigh batcher.
Erie 100 ton 3 compt. bin with weigh batcher.
Butler 60 ton, 2 compt. bin with weigh batcher.
B.K. 50 ton, 2 compt. bin with weigh batcher.
Fuller Kinyon bulk cement unloader, portable.
Fuller C40 rotary air compressor, electric.
Rex Model 190 Pumperete, 1000′ pipe, etc., gas.
Rex Model 200 Pumperete, 750′ pipe.
Koehring 27E Paver, boom and bucket.
Smith 27E Paver with 40′ Tower.

SPECIALS!!

Derrick Boat equipped with 20 ton Wiley Whirley, 100′ bm., 12x12 Steam Hoist. Hull 33x114x10′.
1—Butler 16 cu. ft. Asphalt Pug Mill.
2—Steel Stiff-leg Derricks, 10 tons, 100′ bm.
2—Steel Stiff-leg Derricks, 15 tons, 110′ bm.
Allis-Chalmers cent. pump, electric, 3500 GPM, 50′.
Lawrence cent. pump Vortex, 8″, portable, gas.
Worthington 8″ cent. Bronze impellor, gas, port.
Barnes cent. 8″ pump, gas, portable.
Gould cent. 8″ pump, gas, portable.
Dredge Pump 10″ FH. cent. 200 HP AC motor.
Sullivan Compressor 1051 cu. ft., F.-M. engine.
American Compr. 425 CFM, 50 lb. pressure, elec.

CRUSHERS—CRUSHER PLANTS

Gyratory crushers: K.V.S. 30, 37-S, 49; Telsmith 32, 8A, 8B; Traylor 8″; McCully 13″, 8″, 6″.
Jaw: 6x12, 9x16, 10x20, 14x24, 12x26, 13x30, 15x30, 16x32, 24x36, 42x48.
Complete Rock Crushing Sand & Gravel Plants.

BUCKETS—STONE SKIPS

2 yd. Hayward Clamshell, digging.
1½ yd. Hayward Clamshell, rehandling.
1½ yd. Williams Clamshell, rehandling.
2—½ yd. Haiss rehandling clamshell.
¾ yd. Haiss rehandling clamshell.
Erie ¾ yd. rehandling, clamshell.
20—Battleship Buckets, 2 to 3 yds.

SHOVELS—CRANES

Marion Type 7, 1 yd. Gas-Electric Shovel.
Bucyrus Erie 37B, 1½ yd. Gas Shovel.
P & H Model 600A, 1 yd. Gas Shovel.
Lorain 75B, 1¼ yd. Gas Shovel.
Lorain 75A, 1¼ yd. Gas Shovel.
Bucyrus-Erie Model 1030 electric tunnel shovel.
Marion Model 32 Steam Shovel, 1½ yd. cap.
Link-Belt K42 Crane, gas, 1¼ yd. cap., rebuilt.

LOCOMOTIVES—CARS

Vulcan 8 ton, std. gauge, gas.
Milwaukee 6 ton, std. gauge, gas.
Whitcomb 4½ ton, std. gauge, gas.
2—Vulcan 6 ton, gas, 36″ gauge.

RICHARD P. WALSH CO.
30 Church St. — New York, N. Y.

AIR COMPRESSORS

C-P14x12, 529′ belted 100 hp motor
Schramm 4 cyl. 360° V drive 60 hp motor
I-R 275′, Waukesha Engine, on skids
Curtis 2 stage No. 95 with 5 hp motor

BELT CONVEYOR EQUIPMENT

1000′ 42″ 6-8 ply conveyor belt
450′ 30″ 6 ply conveyor belt
120 Robins 42″ trough idlers
16″ x 80′ belt conveyor
100 selected head and tail pulleys
Cotton belts 12″, 14″, 18″, 30″, 48″

CRUSHERS

Farrell jaw crushers 24x13 & 15x9
Champion jaw crusher 24x12 & 13x7½
Reliance jaw crusher 16x9
Traylor 11″ Bulldog gyratory on wheels
Double crushing rolls, 16x24 & 16x42
Single spiked crushing roll 24x24″
American double crushing rolls 36x30″
American Disintegrator rolls 18x30 & 24x30
Marcy Roller Mill 1′x2′ with steel balls

SCREENS

Leahy 3 deck 4x6′ direct motor driven
Hummer vibrating, type No. 31 & No. 37, 1-2 deck
Revolving Screens, 2x8′, 2x9′, 30″x12′, 4x18′

BUCKET, ELEVATORS

8″ continues steel bucket elevator, 30′ enclosed
18″ continues steel bucket elev. 35′ on chain
20″ continues steel buckets, 40′ on 8 ply belt
30″ continues steel buckets, 40′ on 2 strands chain
Malleable bucket elevators with 6″ to 20″ buckets on belt or chain of all heights
Salem buckets 5″, 9″, 10″, 14″, 16″, 18″ on belt and chain
18″x8″ round bottom bucket elev. on chain, 40′ high
300′ elevator belt 20″—8 ply water proofed
Several tons selected gears, sprockets, elevator chains

MISCELLANEOUS

75 hp F-M 2 cyl. Diesel engine, 300 rpm.
2 Fairbanks Bulldog oil engines 5 hp 450 rpm.
Nat'l 2 drum 25 hp electric dragline hoist
15 hp single drum Lidgerwood hoist, gas or electric
Two 15 hp electric car pullers
36″ gauge 8 ton and 4 ton locomotive
30″ gauge Mercury 2 ton storage battery locomotive
6—24″ gauge flat cars 4′x12′ platforms
2 No. 7 Telsmith Sand Dewatering tanks
28″ x 12′ Telsmith screw washer, V belt
2—12′ dia. storage tanks, 90 and 50 ton capacity
Revolving Dryer 4′x21′ with 18″ center flume
6 Kron dial scales, 3—250 lb., 3—2,000 lb.
Centrifical pumps, motors, engines

G. A. UNVERZAGT & SONS, 136 Coit Str., Irvington, N. J.

EQUIPMENT NEEDS

1—15 Ton No. 8 BROWNING Loco. Crane
1—No. 2 BROWNHOIST 10 Ton Pedestal Crane
1—No. 3 CEDARAPIDS Kubit Crusher
1—No. 4 CEDARAPIDS Kubit Crusher
1—No. 5 TRAYLOR Gyratory Crusher
1—BESSER Concrete Block Plant
1—Model 21 PARSONS Trencher
1—½ Yd. GENERAL Shovel
1—1¼ Yd. LIMA Model 101 Shovel
1—2½ Yd. JAEGER Truck Mixer
1—27E FOOTE Paver
1—2x6 SYMONS Vibrator Screen
1—6′ KENNEDY Sand Classifier
1—Steel Guy Derrick—105′ Boom
1—16 Ton PLYMOUTH 36″ Locomotive
1—16 Ton VULCAN 36″ Locomotive
1—920 CEDARAPIDS Gravel Plant
1—No. 12 PIONEER Gravel Plant
1—Model 42 BARBER-GREENE Loader
1—BARTLETT & SNOW Skip Hoist

We buy and sell all kinds of equipment. What do you need or have to sell?

PATTERSON EQUIPMENT CO.
1468 West 9th St. — Cleveland, Ohio

FOR SALE—REBUILT EQPT.

BAY CITY Model "S" combination 1 yd. shovel, crane & dragline.
UNIVERSAL-LORAIN Mod. 35—½ yd. comb. shovel, crane, dragline.
P & H Model 450—1 yd. Shovel.
KOEHRING #1—¾ yd. crane & dragline. Can furnish ¾ yd. Shovel Front.
HEYWARD—1½ yd. clam shell bucket.
WILLIAMS—½ yd. clam shell bucket.
INDUSTRIAL WORKS—25 Ton—8 wheel steam Loco. crane—50 ft. boom.
WHITCOMB Model CS-4—4½ Ton 24″ Gauge Gasoline Locomotive.
3—PLYMOUTH Model FL-4 ton 24″ Gauge Gasoline Locomotives.
DAVENPORT 22 Ton—4 Wheel saddle tank Type—Std. Ga. Loco. Cyl.—11″x16″.
VULCAN—33 ton—4 wheel saddle Tank Type —Std. Ga. Loco. Cyl.—13″x18″.
CH&E #11—Triplex Road Pump.
NOVO—40 H.P. Gasoline D.D. Hoist.
CARRY-ALL TRAILERS—10 to 30 Ton.
10—BUDA Model 119 and Model 19-L motor section cars for standard gauge track, Buda air cooled gasoline motor.

Other Type of Equipment, Too

SOUTHERN IRON & EQUIPMENT COMPANY
Plant and General Offices:
ATLANTA, GEORGIA

30,000 CAST IRON STEEL SPLIT PULLEYS IN STOCK

Sizes 1½ x 1½ to 84 x 20 Crown and Straight Face

20—58 x 12 C.F. 19—50 x 10 C.F.	10—42 x 10 C.F. 20—36 x 10 S.F.	200—28 x 8 S.F. 500—26 x 6 C.F.	800—26 x 4 C.F. 200—20 x 5 C.F.	100—20 x 5 S.F. 500—15 x 2 C.F.	400—12 x 4 C.F. 500—12 x 2 S.F.	200—8 x 3 C.F. 200—5 x 3 C.F.

AND 30,000 OTHER METAL PULLEYS OF ALMOST ANY SIZE MADE

1600 Drop Hangers—800 Hyatt—2000 Babbited Bearings—V Belt Drives

Thousands of Gears—Sprockets—Chain—Pillow Blocks—Shafting, Etc.

A Vast Stock of New and Used Power Transmission Equipment—No Priorities on Used Materials

TE-CO RUBBER BELTING 3-4-5-6 and 8 ply any width to 48 inches IN STOCK

18″ 4 Ply—24″ 5 Ply—1′M Good Rubber Covered Conveyor Belting in Stock

TEUSCHER PULLEY AND BELTING CO.

801-803-805 N. SECOND STREET **ST. LOUIS, MO.**

"The Test of Time Since '99"—Catalog K On Request

COMPLETE GRAVEL CRUSHING AND SCREENING PLANT FOR SALE

We have purchased the complete plant of the Pierce Island Sand & Gravel Company, now in operation at Pierce Island near Bonneville, Oregon, and offer this equipment for sale for delivery October 1st, 1942.

Plant may be inspected in operation at this time.

Plant was installed last year to produce concrete aggregate for Puget Construction Company at Bonneville Dam, and most of the equipment was new when installed. Equipment consists of the following:

CONVEYORS—complete with motor and starting switches:
- 1—24″-285 ft. long, center to center
- 2—24″-100 ft. long, center to center
- 1—24″- 75 ft. long, center to center
- 1—24″-282 ft. long, center to center
- 1—18″-120 ft. long, center to center
- 1—18″- 85 ft. long, center to center

SCREENS—complete with hoppers, motor and starter:
- 1—5x10 Triple deck Simplicity Model D
- 1—4x 8 Single deck Simplicity Model B
- 2—3x 6 Single deck Simplicity Model C
- 1—2x 6 Single deck Simplicity Model C
- 1—4x12 Barrel Type Screen
- 1—3x10 Double deck Symonds

CRUSHERS—complete with hoppers, motor and starter:
- 1—15x36 Universal Jaw Crusher
- 1—20x40 Universal Roll Crusher

PUMPS—complete with motor and starter:
- 1—5″ American Marsh Centrifugal Type H.S.M.
- 1—1½″ Pacific Pump

SAND TANKS:
- 2—4′ Sand Settling Tanks

For price and further details inquire:—

Balzer Machinery Co.
PORTLAND, OREGON
2136 S. E. Eighth Avenue
EAst 2143

Don't Delay SPECIAL OFFER *Immediate Shipment*

HEAVY DUTY **RUBBER HOSE** GUARANTEED

WATER HOSE
Each Length with Couplings Attached

I.D. Size	Length	Price per Length
¾″	25 feet	$4.50
	50 "	9.00
1″	25 "	6.25
	50 "	12.00
1¼″	25 "	7.50
	35 "	10.50
	40 "	12.00
	50 "	15.00
1½″	25 "	10.00
	35 "	14.00
	50 "	20.00

LARGER SIZES ALSO AVAILABLE

AIR HOSE

I.D. Size	Length	Per Length	Couplings
½″	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 "
¾″	25 "	7.50	2.50 "
	50 "	15.00	2.50 "
1″	25 "	10.00	3.50 "
	50 "	20.00	3.50 "

1¼″—Price on Application
1½″— " " "
2″ — " " "

OTHER SIZES ALSO AVAILABLE

All Prices—Net—F.O.B. New York—Federal Excise Tax Included
ALL HOSE GUARANTEED

CARLYLE RUBBER CO., Inc.
64 PARK PLACE NEW YORK, N. Y.

GOOD USED COMPRESSORS

110-220-310-360 gasoline driven portable Compressors overhauled —attractive prices.

Wagon Drills—Drill Sharpeners.

Blaw-Knox 5 yard Agitator Body.

●

SERVICE SUPPLY CORP.
20th & Venango Sts., Philadelphia, Pa.

FOR SALE
Shovels—Trucks—Compressors

1—Model 1201 Lima High Lift Shovel 42′ boom, 32′ dipper sticks, 2½ cu. yd. dipper, NKH Hesselman oil engine. Machine convertible to crane or dragline. Machine rebuilt and guaranteed.

1—Model 480 2 yard Marion Steam Shovel. Good working order.

1—FD Euclid 10 yard rear dump truck—Cummins Diesel engine. Rebuilt and guaranteed.

1—D99 Hug 15 yard rear dump Boulder Dam type truck. 10 wheels. Rebuilt and guaranteed.

1—Ingersoll Rand 315 cu. ft. Air Compressor—Hesselman oil engine. Truck mounted. Rebuilt and guaranteed.

1—Worthington 215 cu. ft. Air Compressor—Hercules Diesel engine. Truck mounted. Rebuilt and guaranteed.

1—2 Cu. yd. Page RH dragline bucket, completely rebuilt.

1—2½ Cu. yd. Bucyrus dragline bucket. Rebuilt.

Frank Swabb Equipment Company
HAZLETON, PA.
Telephone 3906

4 OFFICES and PLANTS

CHICAGO 11550 Washtenaw Ave. | NEW YORK 30 Church St., Dept. ENR
PITTSBURGH P. O. Box 2933, Dept. ENR | PHILADELPHIA 1503 Race St.

EQUIPMENT CORPORATION of AMERICA

WE SERVE 4 WAYS
BUY | REBUILD
SELL | RENT

4

FOR SALE!

From Salt Lake City, Utah

2—Miles of 55 lb. Railroad Track
1—Davenport 18 ton Saddle Tank Locomotive, 36" ga.
1—Brookville Gasoline Locomotive, 36" ga.
14—Standard (Western) 4 yd. Dump Cars
1—30" Feed Belt Conveyor, with 8'x11' hopper and grizzley
1—Two Roll spike roll Crusher
2—18"x100' Troughing Belt Conveyors
2—Eimco Classifiers, single and double rake
1—Stephens Adamson Redler Conveyor
2—Kimball Krough 2" Sand Pumps
10—Centrifugal Pumps, 1½" to 3"
5—Steam and Duplex Pumps
15—Motors, 3 to 100 HP, 3/60/220-440 volt
8—Redwood Tanks, 16'x12'
1—Battery of 2—250 HP Boilers
1—Hamilton Engine Generator Set, 360 KW, 3/60/480 volts

MISCELLANEOUS: Small Tools, piping, valves, fittings, steel plate, etc.

BULLETIN ON REQUEST

REPRESENTATIVE ON PREMISES

SPECIALS

1—BONNOT ROTARY DRYER, 6'x70' ½" SHELL, COMPLETE WITH SUPPORTING AND DRIVING MECHANISM
1—Kennedy Van Sauen 8'x12' Air Swept Tube Mill, with 90" fan, 9' and 13' cyclones.
1—Jeffrey Type "A" 24"x36" Hammer Mill
1—Jeffrey Type "A" 18"x24" Hammer Mill
1—Rotary Dryer, 3'x25', stainless steel shell, with extra chrome iron shell, practically new
1—Dryer, 5'x35'
1—Denver 36"x16" Crushing Rolls
3—Tyler Hummer Screens, 3'x5', 4'x5'
1—Raymond Roller Mill, 4 roll, high side
1—Raymond No. 1 Impact Mill, motor driven, with cyclone and tubular collector
1—Rotary Kiln, 4'x40'
1—Rotary Kiln, 4'x30'
1—Rotary Dryer, 3'x20'
1—Rotary Dryer, 3'x18'
1—Rotary Kiln, 8'x84', ½" shell
16—Jaw Crushers, 3" to 5" to 84"x56"
14—Hammer Mills, Williams, Jeffrey, Gruendler, American, JayBee, from 5 to 100 HP
10—Steel Bins, 10 to 100 tons
25—Centrifugal Pumps, 2" to 6"
3—Tube Mills, 4'x16', 5'x22'
1—Raymond No. 00 Screen Mill, motor driven
6—Oliver Rotary Filters, 3'x2' to 11'x8'
6—Dorr Thickeners and Classifiers

Partial List Only. Send for bulletin covering 9 plant liquidations.

WANTED: YOUR SURPLUS EQUIPMENT FOR CASH—FROM A SINGLE ITEM TO A COMPLETE PLANT.

BRILL Equipment Corp.
183 VARICK STREET NEW YORK

That handy man of yours with a monkey wrench and a piece of hay wire, who pinch hits for a mechanic, may soon be drafted. Be wise. Be prepared. Get rid of your dilapidated equipment now and buy GOOD EQUIPMENT FROM E. C. A.

FOR SALE

LOCOMOTIVES
1—7 ton Whitcomb 36" gauge gasoline locomotive, type MO, power gasoline engine.
4—7 ton Plymouth type 2, Model D L 24" gauge locomotives power gasoline engines.
3—7 ton Whitcomb type MO 24" gauge, power gasoline engines.
1—7 ton Plymouth 24" gauge type 2 Model HL power gasoline engine.
1—3½ ton Plymouth 24" gauge Model A L 105 gasoline power.
1—3 ton Whitcomb 24" gauge type U. T. gasoline power engine.

PNEUMATIC TOOLS

Jack Hammers
13—Jack Hammers, Ingersoll-Rand, Gilman, Sullivan, Gardner-Denver, and Cleveland.

Chipping Hammers
10—Chipping Hammers, Chicago Pneumatic, Ingersoll-Rand, and Thor.

Riveting Hammers
30—Riveting Hammers, Thor, Ingersoll-Rand, Chicago-Pneumatic, Boyer, and Sullivan.

Paving Breakers
12—Paving Breakers, Ingersoll-Rand, Gardner-Denver, Sullivan and Thor.

Air Drills
10—Air Drills, Chicago Pneumatic and Cleveland.

Spades
7—Spades, Ingersoll-Rand. Weight, 23 to 40 lbs. each.
Also a number of grinders, wood bores, and drifters.

Wagon Drills
2—Gardner-Denver wagon drills with 16' high derricks. Has hand winches for raising and lowering. Equipped with model No. 21 Gardner-Denver drills. Will channel 30' deep.
1—Ingersoll-Rand wagon drill with derrick mounted on four steel wheels, equipped with Ingersoll-Rand air hoist for steel drill. Has Ingersoll-Rand drifter broached for 1¼" steel.
1—Cleveland wagon drill, Model DR-6, mounted on two pneumatic tired wheels. Latest model, can adjust for any direction drilling. Equipped with air feed and blowing device.

SHOVELS & CRANES
1—No. 1 Brown hoist, Ser. No. 10271 with 35' boom.
2—B-2 Erie steam cranes with 40' boom.
1—No. 2 Northwest shovel, ser. No. 2908, ½ yd. shovel front.
1—Mdl. 301 Koehring, ser. No. 544, with 45' boom.
1—Universal Truck Crane, ser. No. 308, ⅜ yd. 24' boom, mtd. on a Mack truck.

SHOVEL & PULL SHOVEL ATTACHMENTS
11—ATTACHMENTS, 1—2 yd. Link Belt K 55, 1—1¼ yd. Lfnk Belt K 42, 2—1 yd. Erie Gas Air GA-2, 1—1 yd. Osgood, 1—1 yd. North-West 105, 1—¾ P & H 206. All above are shovel attachments, 2—1¼ yd. Link Belt K 42, 2—1 yd. North-West No. 4. All the above are pull-shovel attachments.

CHICAGO 1160 S. Washtenaw Ave.
PITTSBURGH P. O. Box 933 Dept. PQ
PHILADELPHIA 1513 Race St.
NEW YORK 30 Church St. Dept. PQ

EQUIPMENT CORPORATION of AMERICA

FOR SALE—SHOVEL FRONTS

1—**LITTLE GENERAL** Shovel Front ½ yd. capacity.
1—**KOEHRING** Model 301 Shovel Front. ¾ yd. capacity.
1—**KOEHRING** Model 401 Shovel Front. 1 yard capacity.
1—**NORTHWEST** Model No. 5 Shovel Front. 1¼ yd. capacity.
1—**BYERS** Shovel Front. 1¼ yd. capacity.
1—**KOEHRING** Model 376 Shovel Front. 1 yd. capacity.

ATLANTIC EQUIPMENT CORPORATION
503 Broad Street Station Building, PHILADELPHIA, PENNA.
Rittenhouse 8583

FOR SALE

MACHINERY EQUIPMENT SUPPLIES

For immediate delivery and operation

American Hoist (65 ton) with slewer—Set 30"x14" Allis Chalmers Crushing rolls—Bucket elevators, Electric Vibrating screens—Revolving Screens—Ingersoll Rand Calyx Drill—One cubic yard Stone Grapple—Electric pumps—Electric motors (40 HP to 5 HP)—Cement Gun—Mahr Vacuum Torch—Blower—Climax Forge—Engine Lathe—Used pipe—Copper wire—Brass valves—belting—fittings—heavy steel plate—Steel shafting—track spikes—bolts—nuts—rivets.

Write for descriptive inventory of this used equipment.

BARNEY JOHNSON, owner—Phone 293, Mellen, Wis.

RECEIVER'S SALE OF VALUABLE PROPERTY:

The undersigned Receiver offers for sale at private bids the property of Falling Spring Lime Company, Inc., situated on C & O Railroad about 8 miles North of Covington, Virginia. Property consists of nearly 700 acres of land with large deposits of lime on same, buildings, hydro-electric power plant, lime plant, about 2 miles narrow gauge railroad, large quantity of machinery, equipment, tools, etc.—Ready to operate—All bids must be received not later than Oct. 31, 1942, twelve o'clock midnight—Bids treated confidentially, and the right is reserved to reject any or all bids. Further information furnished upon request.

Geo. A. Revercomb, Jr.
Receiver of Falling Spring Lime Company, Inc.
Covington, Virginia

FOR SALE
AVAILABLE FOR IMMEDIATE DELIVERY

Eight Horizontal Rotary Kilns 7'x60' with tapered extension with 15' long and 5' diameter discharge end, supported by three standard tires with trunion supports and driven by girth gear with pinion and intermediate reduction for belt drive.

Two Abbe (Smidth) lined Ball Mills, 4'6"x18', supported by tires and their trunions and driven by girth gear for pulley drive and available with 75 HP 3 phase 60 cycle 440 volt 720 RPM motor.

One Allis-Chalmers lined Ball Mill 4'6"x20', lined and supported by customary tires with their trunions and driven by girth gear and pinion and intermediate reduction for belt drive.

One Allis-Chalmers double roll Crusher, rolls 12"x24", arranged for belt drive.

One Tyler-Hummer Vibrating Screen with 3'x5' surface with motor driven Generator.

One Battery of Tyler-Hummer Screens consisting of 1—No. 32 Screen 4'x5', 2—3'x5' and 1—3'x5' together with motor driven Generator.

Send for complete descriptions and quotations

FIRST MACHINERY CORP.
819-837 E. 9th St., New York, N. Y.

COMPLETE STONE CRUSHING
or
SAND and GRAVEL PROCESSING SERVICES
available on tonnage basis

We will install NEW, MODERN portable or semi-portable plant in any practical location. Capacity 100 to 150 tons of stone per hour or 150 to 200 tons of sand and gravel per hour.

Estimates Furnished Without Obligation
Address
CONTRACTORS SERVICE CORP. **Harrisburg, Pa.**

For Sale! ! !

Carload Used 3/16" Plates

7'-4" x 7'-4" and 5' x 8'

5000 Ft. 2½" FIRE HOSE

E. COHN & SONS
Cedar Rapids, Iowa

TO THE MINING INDUSTRY ATTENTION!

For immediate sale. 1 Kennedy Van Saun Slugger Roll Crusher 36" x 48". 1 Rock Pan Feeder 42" x 13'9". 1 Kennedy Van Saun Hammer Mill Crusher 54" x 48". Same as new condition. Never been used. Overhead Structural Steel Crane Runway 780' long. Robins Conveying Belt Equipment for 30" system, troughing idlers, return idlers, gears, pulleys, etc. 1 Whitcomb Gasoline 10 Ton Locomotive. 1 Large Structural Steel Ore Bin. 3 Westinghouse Induction Motors and 3 Reduction Gears. **Other items on hand. All bought new; never been in service.** Equipment immediately available. No red tape. No priority required.

Write, Wire or Telephone—F. Clay Oxford, Receiver for American Portland Cement Company, FOREMAN, ARK.

POSITION WANTED

Production manager or superintendent in Portland Cement or similar heavy machinery industry. Now employed as General Superintendent in Portland Cement.

Experienced with executive's problems such as supervision, construction, manufacture, rehabilitation, labor negotiations, etc.

Address All Replies To

Box 1009
PIT AND QUARRY PUBLICATIONS
538 S. Clark Street **Chicago, Illinois**

DOCK SPACE FOR RENT

The dock is a rectangular plot approximately 109x390' projecting into Presque Isle Bay located at Erie, Pa. The dock has water exposure on one side—one end and on approximately 240' of the other side, with retaining wall. Along the 240' exposure, the water is approximately 10' deep, on the other side the depth varies from one foot, and on the exposed end, the depth varies from 1 to 10'. The dock is flat and about 8' above water level. There is a railroad siding the length of the dock and an access roadway from the street.

The RUBEROID Co.
ERIE PENNA.

LOCOMOTIVE CRANES—STANDARD GAUGE

15 Ton—McMyler Steam Crane — 4 Wheels
50' Boom—1½ yd. Hayward Clam Shell Bucket
12 Ton—O & S Gasoline Crane — 8 Wheels
40' Boom—1¼ yd. Clam Shell Bucket

Immediate Shipment

ARTHUR S. PARTRIDGE
St. Louis **415 Pine St.**

POSITIONS VACANT

Engineers and Draftsmen having practical experience with cement making machinery, layouts and machinery design. Apply to

F. L. SMIDTH & CO.
ENGINEERS
60 East 42nd Street New York, N. Y.

BUCKETS, clamshell, 1—1¼—1½ Yd.
CONVEYOR, 20'x14" belt feed.
CRANE, Byers ¾ yd., gasoline powered.
GRADER, Russell 6' blade.
GRADER, Adams 12' leaning wheel.
HOIST, Clyde single drum, 3,000 lbs. capacity.
PUMP, Domestic 6" centrifugal.
SCREENING PLANT, Cedar Rapids portable gravel screening & loading plant, OPO type, with Waukesha gasoline engine, revolving screens, feed & delivery conveyors, capacity 75 to 100 tons per hour. Excellent condition. No crusher.
SHOVEL ATTACHMENT, 1 yd. Northwest.
TRACK LINKS, (50) Northwest 24" alloy steel, excellent condition.
TRUCK CRANE, Universal ½ yd.
WAGON DRILL, Sullivan Feather-weight.
WAGON, Trailit 91 cu. ft. steel bottom dump.

O. B. Avery Company
1325 Macklind Ave. St. Louis, Mo.

Dodge 7 x 9 Penna 10 x 16
Jaw Crushers 36 x 16 Allis
Chalmers 54 x 20 Traylor
Rolls #1 and 1½ Sturtevant
rotary crushers—ball and
rod mills 4' x 8'. 4' x 9'
Hardinge 8' x 22"—Braun VA Sample grinder
00 Raymond with motor
2—6x10 Feinc Filters
1—16x12' Dorr
50 H.P. slip ring motor with drum control
15 ton 45' span hand operated crane with runway
30" x 40' coolers, 5' x 50' kiln, Herreshoff & Wedge Furnaces, 20 ton steel bin

LAWLER COMPANY
Lawler Pl. and L. V. R. R.
Metuchen, N. J.

FOR SALE
Wire Rope, Cable and Guying, also Clamps
17—Hoisters, single and double drum
Air Compressors, Stationary and Portable
Jackhammers, Air Grinder, Wood Borer
Derrick Castings—Sheaves
Tackle Blocks
Heavy Chain ¾" and ⅞"
2—I. R. Drill Sharpeners Series 40 and 50
Electric Motors, 2 to 50 H. P.
Pumps, centrifugal and triplex
Black Pipe, 2½" and 3"
Universal Steam Semi-Automatic Dipper Trip Type D
6" Loomis Well Drill Clipper Steam Tractor Type
Beaudry Trip Hammer 250 lbs.
Dunning & Boschert Press 300 ton, tire type
Light and 80 lb., Railroad Rail—Small Cars
2 yd. Steel Dump Body with hoist
Quantity Steel and Wood Split Pulleys
Linn Tractor Model 628-D, Capacity 10 ton
Quantity Linn Tractor Parts
10 Koppel 4 yd. Dump Cars, wood bodies
Austin No. 4 Gyratory Crusher
Portable Climax Jaw Crusher
1—Symons Disc Crusher 24"
3—Mosser Crushing Rolls 30"

S. WEINBERG CO., GRANVILLE, N. Y.

STEAM POWER PLANT

Complete steam electric generating plant, including two 500 H. P. Sterling boilers, three 500 KVA and one 350 KVA turbine-driven generators, switch board, pumps, condensers, etc. Knocked down and easy to ship—shipping point, Southern Nevada.

ELIZALDE & CO. LTD.
405 Montgomery St. San Francisco, Cal.

STEEL WIRE ROPE FOR SALE

HEMP AND IND. WIRE ROPE CENTER FOR HOISTING, DRAGLINES, SHOVELS, HAULAGE, GUYS, ETC.

IMMEDIATE SHIPMENT FROM STOCK

TERRENCE P. WYNN
55 West 42nd Street **New York, New York**

WANTED TO PURCHASE

Locomotive cranes, any type or size. We are prepared to inspect and purchase at once.

THE ACME EQUIPMENT COMPANY
14057 Schaefer Highway **Detroit, Mich.**

The following equipment is for sale and available for immediate use:

One—Rex Pumpcrete Model 180, with re-mixer and approximately 500 lin. feet of 7 inch Pipe Line. In first class working condition.

One—Ransome 3 cubic yard mixer mounted on International Truck. General condition and rubber good. Ready for work. Separate engine drive.

Two—Jaeger 1 cubic yard mixers mounted on Ford Trucks. General condition and rubber good. Ready for work.

Two—Ransome 4 cubic yard mixers mounted on A.C. Mack Trucks. General condition and rubber good. Ready for work.

Three—Jaeger 4 cubic yard mixers mounted on A. K. Macks with power Take-off. General condition and rubber good. One of these units has converted 6 cyl. Continental engine. All units ready for work.

One—Jaeger Mixer, 4 cubic yard, mounted on BX Mack Truck, Hercules motor, 6 cyl. separate engine drive. General condition and rubber good.

One—Butler, three compartment 120 cubic yard bin with two cubic yard weigh batcher, three beam scale with hot water heater and tank.

One—Model 105, North West Crane, 60 foot boom, 1¼ yard Hayward Bucket, Caterpillar mounted, gasoline powered.

This equipment is offered subject to prior sale and commitments and can be inspected at any time by appointment.

SHINN AND WALKER, INC.
Foot of Centre Street
Newark, N. J.
Phone Mitchell 2-1136-1137

LOCOMOTIVES
SHOVELS — CRANES
CARS

1—50 ton American 4 wheel saddle tank, code boiler, standard gauge, being rebuilt.

1—22 ton American 4 wheel saddle tank, code boiler, standard gauge, overhauled.

2—40 ft. steel flat cars, 100,000 lb. capacity, cast steel "U" section truck frames, new decks, interchange condition.

1—33 ton standard gauge Vulcan saddle tank, ASME Code boiler.

Crane or Dragline Fronts for Marion 37 and Bucyrus 50-B, One Each.

1—1½ Yd. Rehandling Clamshell Bucket, Practically New.

Birmingham Rail & Locomotive Co.
BIRMINGHAM, ALABAMA

Used and New Equipment for Quick Delivery

(NEW)

(1) Gruendler 10 x 16 Roller Bearing Jaw Crusher.
(2) 24 x 18 Pulverizers.
(1) 30 x 24 Pulverizer.
(1) 32" Single Cage Gravel & Stone Crusher.
(1) 42" Fine Grinding Ring Roll Mill.
(1) 42 x 36 Pulverizer.

(USED AND REBUILT)

(1) Gruendler 15 x 24 Plain Bearing Blake Type Crusher.
(1) Model 101 Type K Day Limestone Pulverizer.
(1) 24 x 18 Pulverizer with Apron Feeder.
(1) Factory Rebuilt (in original crate) LeRoi RAP2, 65 H.P. Gasoline Engine.

ALL SUBJECT TO PRIOR SALE

Write
"CRUSHER SERVICE"
Box 795
St. Louis, Mo.

STANHOPE OFFERS!

AIR COMPRESSORS
BELTED: 355, 528, 676, 1000, 1300 & 1570 Ft.
ELECTRIC: 478, 676, 807, 1302, 1722 & 2850 Ft.
DIESEL: 105, 315, 420, 603, 807 & 1000 Ft.
PORTABLE GAS: 110, 160, 220, 310, 540 & 1300 Ft.
STEAM: 49, 310, 528, 1300 & 2200 Ft.

BUCKETS
50 Skips and Battleship Type, 2 to 6 Yds.
5 Owen & Bucyrus Rock Grabs.
CLAMSHELL: ½, ¾, 1, 1½ & 2 Yds.
ORANGE PEEL: ¾, 1, 1½, 2 & 3 Yds.
DRAGLINE: ½, ¾, 1, 1½ & 2 Yds. Cap.

CRANES & DRAGLINES
5 Ton BROWNHOIST, 30 Ft. Boom Gas.
12 Ton NORTHWEST 50 Ft. Boom Gas.
12 Ton KOEHRING 45 Ft. Boom Gas.
16 Ton Speedcrane, Gas, 50 Ft. Boom.
25 Ton BROWNING & 30 Ton AMERICAN Locomotive.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.
2½ Yd. Lorain Model 95, Diesel Dragline.

CATERPILLAR SHOVELS
½ Yd. P. & H. Gas & ¾ Yd. Insley Gas.
¾ Yd. KOEHRING Gasoline.
¾ Yd., 1¼ Yd., 2 Yd., 4 Yd. & 8 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas & 7/8B2 Steamer.
1½ Yd. BUCYRUS 41B Steamer.
1½ Yd. Lima 750 Diesel.
1½ Yd. KOEHRING 601—Gas.

OIL DISTRIBUTORS' TRUCKS
3—1000 gal. ETNYRE Mack.

DUMP CARS
46—KOPPEL 1½ Yd., 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
20—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD AND TUBE MILLS
6x8 Continuous Pebble Mill.
5x5 Batch Mill.
5'x22" HARDINGE CONICAL Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
4x8, 8x6, & 10x9 Straight Ball Mills.
8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x16, 5x18, 5x22, & 6x22 Tube Mills.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 5x12 and 6x12 ROD MILLS.
4x16 Smidth Tube Mill Silex.
5½x20 Smidth Tube Mill Mang. Lining.
5½x18 P & M Tube Mill Silex.

PULVERIZERS
No. 1 Sturtevant Ring Roll.
RAYMOND Auto. Pulverizer No. 0000, 0 & 3.
RAYMOND Imp Mills No. 4, 32 & 55.
GRUENDLER XXB Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 Ft. Chaser Mill.

SEPARATORS AND COLLECTORS
14 ft., 8 ft. and 13 ft. Separators

ROLL CRUSHERS
36x60 Fairmont Single Roll.
36x20 Diamond Double Roll.
24x24 & 36x16 & 36x20 Diamond Double Roll.

JAW CRUSHERS
10x8, 13x7½, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 20x17, 26x12, 30x15, 30x13, 36x30, 36x18, 36x14, 36x15, 36x9, 36x8, 38x18, 36x10, 36x24, 42x9, 48x36, 50x42, 84x66, 36x16, 9x36.
30x10 Gruendler Roller Bearing.

CONE & GYRATORY CRUSHERS
18 in., 24 in., 30 in., 36 in. and 48 in. Symons Disc.
21K & 18N Allis Chalmers.
4—10 T2 Traylor 4 Ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory.
8 in. Traylor T. Gyratory, Telsmith No. 9.
17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
8, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16" Traylor.
7 Ft., 5 Ft., 4 Ft. and 3 Ft. Symons Cone.

DRILLS
4—SANDERSONS 14 & LOOMIS 44.
7—Ingersoll-Rand Wagon Drills, FB & M2.
29T ARMSTRONG Well Drill.

HOISTING ENGINES
7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8½x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

HAMMER MILLS
4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Gruendler No. 6X.

STEEL BINS
72 Ton BLAW-KNOX 2 Compt.; also 250 ton.
100 Ton BLAW-KNOX 2 Compt.

CEMENT BIN
400 Bbl. Portable BUTLER Bulk Cement Bin with Fuller Full Automatic Electric Push Button Weigh Batcher.

SYNCHRONOUS MOTOR GENERATORS
100 K.W. RIDGWAY 3/60/2200-250-275 volt.
150 K.W. GEN. ELEC. 3/60/2200-250-275 volt.
200 K.W. RIDGWAY 3/60/2200-250-275 v., 900 rpm.

DIESEL GENERATORS
240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.

RAYMOND MILL
5 Roll High Side.

CONVEYOR PARTS
BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In. Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

ROTARY DRYERS AND KILNS
36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 24 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 5x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

STEEL DERRICKS
GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

LOCOMOTIVES
DIESEL: 7—4½, 8 and 15 Ton 36 & 42 In. Ga.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

SCREENS
VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72. HUMMER, ROTEX, NIAGARA & ROBINS. LINK BELT & HURON.
REVOLVING: 8x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x20, 6x20.

SAND WASHERS AND CLASSIFIERS
4 LINK-BELT A-60 In. Classifiers.
7 ALLEN Cones 4 Ft., 5 Ft., 6 Ft., 8 Ft.
30" Reciprocating Plate Feeder.

RAILROAD CARS
12—50 Ton Cap. Battleship Gondolas.
7—50 Ton Cap. Flat Cars.

SAUERMAN DRAG AND SLACKLINES
1— ¾ yd. Gas 1—1½ yd. Electric
1—1 yd. Electric 3—2 yd. 3 yd. & 4 yd. Electric

42 IN. BELT CONVEYOR
350 Ft. Barber-Greene Sectional Steel Frame Roller Bearing Belt Conveyor. New 1939.

JACK HAMMERS AND DRIFTERS
21 Worthington 169 Drifters.
12 Worthington 180 Drifters.
6 Gardner-Denver 15 Jackhammers.
45 Ingersoll-Rand Drifters S70, N75, X71, DA35.
11 Ingersoll-Rand S49 Jackhammers.

R. R. TRACK SCALE
125 Ton 56' x 10'6" Platform 4 Section.

WHIRLEY CRANES
5 Clyde 75 to 100 Ft. Boom.

DRILL SHARPENERS
5 I.R. 4K Shank Grinders.
6 Ingersoll-Rand 54, 40, 50 & 34's.
7 Sullivan Class A, & C.
8 Gardner-Denver 3A & No. 6DS.

CONE CRUSHERS
Symons No. 5½ and 7 Ft.

(Cable Address: "STANEQUIP" New York)
Lincoln Bldg., 60 E. 42nd St., New York, N. Y.
Murray Hill 2-3075 or 2-3076

R. C. STANHOPE, INC.

We Specialize in
New and
Rebuilt Equipment

KILNS, COOLERS, DRYERS,
CRUSHERS, TUBE MILLS,
CRANES, ETC.
MOTORS, GENERATORS AND
ELECTRICAL EQUIPMENT

Write us regarding the equipment you seek

WEBBER EQUIPMENT CO.

17 East 45th Street — New York

1—12" Amsco Dredge pump, with direct connected 400 HP Allis-Chalmers, 2200 volt, 3 phase, 60 cycle motor, complete with primary oil switch, drum controller, and variable resistors.

Electrical Engineering and Construction Co.
13th and Walnut Sts. Des Moines, Iowa

FOR SALE
ELECTRIC SHOVEL
6½-7½ yard, Bucyrus 320-B;
Railroad Trucks
IRON & STEEL PRODUCTS, Inc.
37 years' experience
13490 S. Brainard Ave., Chicago, Illinois
"ANYTHING containing IRON or STEEL"

FOR SALE

1—19-Ton 0-4-0 Davenport Loco. Good condition.
1—28-Ton 0-6-0 American Saddle Tank Loco. Built 1928.
1—38-Ton 0-4-0 American Loco., S. G. Saddle Tank.
1—42-Ton 0-4-0 Baldwin Loco., S. G. Saddle Tank.
1—60-Ton 0-6-0 S/T Switching Loco. Coal-burner; A. S. M. E. Code. Good condition.

SEND US YOUR INQUIRIES FOR ANY KIND OF LOCOMOTIVES

37 years' experience

IRON & STEEL PRODUCTS, Inc.
13490 S. Brainard Ave., Chicago, Illinois
"ANYTHING containing IRON and STEEL"

FOR SALE

Used Metal Working Machinery, Pipe
Structural Steel
Steel Plates and Sheets
Rails, Locomotives, Cars
Contractors Equipment
Storage Tanks

Also Will Buy Any of Above.

HYMAN-MICHAELS CO.
122 S. Michigan Av. Chicago, Ill.

FOR SALE

2—8-ton cap. General Gas Crawler Cranes, 25′ Booms, overhauled in excellent cond.
1—7½-ton cap. Universal Truck-Crane No. 1346, 32′ Bm. 4-sp. Mack Truck, pneumatic tires, outriggers, ½ yd. Owens CS Bucket, rebuilt.
1—General Gas Crawler Backhoe, ⅝-yd. digs trench 30 in. wire, repaired.

Grey Steel Products Co., Inc.
74 Central Ave. Glen Rock, N. J.
Tel. Ridgewood 6-2275

FOR SALE OR RENT

1—Austin-Western Badger shovel.
1—International T-20 trac-tractor.
1—Galion 10 Ton 3 wheel Roller.
1—Caterpillar 35 Diesel power tractor with bulldozer.
1—Caterpillar 44 ten foot Leaning wheel grader.
1—Austin-Western 7-tyne Ripper.
1—Bucyrus-Erie 10-B Combination dragline and shovel.

Western Equipment & Supply Company
2231-2233 Eleventh Street
Rock Island, Illinois

FOR SALE

1—Buffalo Steel Plate Pressure Blower, Type R, Size 68.
1—Sturtevant Fan, Design 3, Type MV, Size 10.
2—Sturtevant Fans, Design 3, Type MV, Size 11.
1—Kennedy Van-Saun 8′x12′ Air Swept Ball Tube Mill.
2—F. L. Smidth 4′x12′ Tube Mills.
1—Steel Trestle, 450 Ft. Long.
1—3 Ton Plymouth Gasoline Locomotive, 36″ Gauge.
1—8 Ton Plymouth Gasoline Locomotive, 36″ Gauge.
1—12 Ton Whitcomb Gasoline Locomotive, 36″ Gauge.

NATIONAL GYPSUM COMPANY
Buffalo, New York

FOR SALE

Ingersoll-Rand steam driven compressor, 125 lbs. steam pressure, 110 lbs. air pressure, 4384 cu. ft. capacity. Wheeler tube condenser and pumps.
Guy derricks and hoists.
Electric motors.
Pumps.
Many other items of machinery.
Send us your inquiries.

CASELLINI-VENABLE CORP.
Barre, Vermont

For Sale

Used electric derrick in excellent condition. American Hoist & Derrick Co. unit. Motor — 25 H.P., 3 phase, 60 cycle, 220 volts. Handles 1½ ton load. Mounted on rail truck.

Also

Complete fittings and sheaves for either a mast or stiff-leg derrick.

KELLEY BROTHERS
2731 South Salina St. Syracuse, N. Y.

FOR SALE

Model No. 3 Universal Jaw Crusher, 9″x14″ size, arranged for belt drive. No. power.

Drill Sharpener and Shanker Model No. 5 Ingersoll-Rand "Leynard." For bits up to 3¾″ diameter on drill rods up to 1¾″ diameter including large assortment dies.

MINNEAPOLIS EQUIPMENT CO.
520 S. E. Second Street, Minneapolis, Minn.

PRICED FOR QUICK SALE

1—Link Belt Shovel Boom Assembly with 1 yard Amsco dipper, excellent condition, will fit models K1, K2, K35, K42 ..... $750.00

1—P&H ¾ yard Shovel Boom Assembly for Model 206 ..... $500.00

1—12″x32″ Lippman Roller Bearing Jaw Crusher $2,200.00

1—Allis-Chalmers Blake Type Jaw Crusher 10″x20″ $1,000.00

LIPPMANN ENGINEERING WORKS
4603 West Mitchell St. Milwaukee, Wis.

FOR SALE

Complete Stone Crushing and Dolomite Roasting Plant. Available immediately. Write or wire for machinery listing and description.

CEDARVILLE DOLOMITE PRODUCTS
Cedarville, Ohio Phone 61761

FOR SALE

Two 1½ cu. yd. Transport Mixer trucks mounted on 1940 Fords. Excellent condition.

GROHNE CONCRETE PRODUCTS CO.
Decatur, Illinois

For Sale

¾-yd. P. & H. Crawler Crane
gas, 38′ boom

IRON & STEEL PRODUCTS, INC.
37 years' experience
13490 S. Brainard Ave., Chicago, Ill.
"Anything containing IRON or STEEL"

FOR SALE

One No. 6 CHAMPION Crusher, Manganese Jaws. Capacity at least 50 tons per hour. Used Very Little. Owner has no further use for it. Priced to sell immediately.

E. E. AUSTIN & SON
20th and Reed Sts. Erie, Pa.

FOR SALE

18″ x 36″ Stevenson Single Roll Crusher.
9″ x 36″ Wheeling Jaw Crusher.
9″ x 15″ Phillips Jaw Crusher.
#4 Champion Jaw Crusher.
#1 Williams Hammermill Crusher.

PITTSBURGH MACHINERY & EQUIPMENT CO.
Aspinwall Pennsylvania

Dunbrik Plant For Sale

Fully equipped. Modern and in operation. Cost $15,000.00. Owner will accept reasonable offer with terms if desired.

CORPUS CHRISTI DUNBRIK CO.
2134 Lipan Street Corpus Christi, Texas

FOR SALE

500 Ft. Second Hand Conveyor Belt, 48 Inch, 9 Ply, 32 Oz., 3/16″ Top, 1/32 Bottom Cover.

ROGAN & ROGAN CO.
Middelsboro, Ky.

FOR SALE

Cat. 50-66 grader, hand control, 4 steel wheels, 12 ft. blade. Cat. 60 gas tractor, new track assembly. International TD40 Diesel tractor, wide gauge. This equipment is completely rebuilt, cleaned and painted, new upholstery and ready to go now.

CLIFFORD WATERHOUSE
Jackson, Mississippi Tel. 2-0617

FOR SALE

1—New TELSMITH 9 x 36 Roller Bearing, Overhead Eccentric Type Jaw Crusher complete with new TELSMITH No. 5 thirty-five foot chain type Elevator complete with drive for elevator. This equipment brand new in our Plant in Louisville, Ky. and available without priority.

BRANDEIS MACHINERY & SUPPLY CO., INC.
Brook & Warnock Sts. Louisville, Ky.

SUCTION DREDGE FOR SALE

Hull approx. 100′ 9″ x 31′; 80′ ladder; 12″ Amsco Hvy. Duty Pump; 250 H.P. G.E. Motor, 2200 V. 500 R.P.M., about 1000′ submarine cable and about 500′ discharge line.

ROSS ISLAND SAND & GRAVEL CO.
4129 S.E. McLoughlin Blvd. Portland, Ore.

FOR SALE

1—two drum Lidgerwood Cableway Hoist, powered with 100 h.p.-220 volt, 60 cycle 3 phase electric motor, controller, bank levers, drumspeed 750 ft. per min., wood block friction, 2″ track cable, carriage, double load block, anchors, takeups and all parts for cableway. Suitable as cableway for quarry. EXCELLENT CONDITION.

Mississippi River Sand and Material Co.
Foot of Victor St. St. Louis, Mo.

POWER PLANT FOR SALE

150KVA-115KW 3-ph. 60-cy. 2300 Volt alternator, 7½KW exciter with 180HP 257RPM Fairbanks-Morse 3-cyl. full Diesel engine, exhaust pipes, force feed lubricator and accessories.
Condition like new.

J. E. INGRAM EQUIPMENT CO.
San Antonio, Texas

WANT TO BUY

2—40 to 60' Portable Conveyors.
20 Ton or Heavier Gas Locomotive.
80 to 125 H.P. 3 Drum Hoist.
Locomotive Crane.
2—10,000 gal. or 1 Large Storage Tank.
2 Miles Portable Track.
24x36 Jaw Crusher.
100 ft. Boom Whirley Crane.
25,000 to 5,000 Gal. cap. Tank on Tower.

Address replies to
BOX 509
PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago, Ill.

WANTED!

LOCOMOTIVE CRANES
CRAWLER CRANES
OVERHEAD CRANES
STEEL BUILDINGS

IRON & STEEL PRODUCTS, INC.
37 years' experience
13490 S. Brainard Ave., Chicago, Illinois
"Anything containing IRON or STEEL"

48" SPIKE ROLLS

Jeffrey double roll crusher arranged for double V belt drive. Manganese segments. Pyramid teeth—bronze bearings.

Excellent condition $2500.00

BROWN-BEVIS EQUIPMENT COMPANY
4900 Santa Fe Ave., Los Angeles, Cal.

WANTED

1—Steel Barge in good condition. Approx. dimensions 6 x 24 x 80.

THE HOME SAND & COAL COMPANY
712 N. Front St. Fremont, Ohio

WANTED

Screen sections — manganese — for complete jacket for 60" Diameter. Allis-Chalmers screen 3—3½" round openings or equivalent.

SERVTEX MATERIALS CO.
New Braunfels, Texas

ELECTRICAL MACHINERY

Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully guaranteed. Write for List and Prices.

V. M. NUSSBAUM & CO.
FORT WAYNE, IND.

FOR SALE—A GOOD TIME TO BUY

1 Limestone plant quarry operating (draft call).
2 Diesel electric locomotives 1000 HP.
1 Dragline Monighan 3W—diesel 3½ yd. 85 lb.
1 Dust collector system Pangborn.
8 Manganese plates for linings.
200 New impactor hammers chrome mang.
3 Jeffrey type 5 feeders with M/G sets.
1 Rod mill Hardinge 6x12 with motor.
1 Gyr. 18N crushers—1 jaw 84x56 crusher.
1 Rotary kiln 8'x84' with lining.

A. V. KONSBERG, 111 W. Jackson Blvd., Chicago

USED MACHINERY WANTED

One Sauermann Hoist, dragline scraper, 1½ to 3 yards.

Address all replies to:
Box 1003
Pit and Quarry Publications
538 S. Clark St. Chicago, Illinois

WANTED TO BUY

One No. 12 Style N. Allis-Chalmers Gyratory Crusher for parts. Particularly interested in spider and corrugated head and shaft.

THE LUTZ COMPANY
Oshkosh, Wisconsin

WANTED

Trenchers—Wheel and Ladder Type
Excavators and Caterpillar Tractors
Auto Patrols and Graders
Repairable or Good Condition
Cash on Delivery
THE CHAS. M. INGERSOLL CO.
19930 Detroit Rd. Rocky River, Ohio

WANTED

2 ft. x 6 ft. Single Deck
Vibrating Screen
Enclosed. No. 20 Mesh

C. WILBERT REEDER
Box 264 Muncy, Pa.

WANTED

32' boom and 22' dipper stick for quarry type No. 37 Marion electric shovel.

EASTERN CLAY PRODUCTS, INC.
Eifort Ohio

WANTED

Mine engineer or man of experience as understudy under mine superintendent. Must be capable of taking full responsibility after few months if necessary. Give full particulars, experience, education, and references.

Address replies to
Box 803
PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago, Ill.

Advertise Your "Wants" and Surplus Equipment

Royal E. Burnham

Attorney at Law

•

Patent and Trade-Mark Causes

•

511 Eleventh Street, N. W.
WASHINGTON, D. C.

HORACE J. HALLOWELL

Analytical and Consulting Chemist
323 Main Street Danbury, Conn.
The Chemical Analyses of Minerals, Carbonate and Silicate Rocks.

CORE DRILLING ANYWHERE

We look into the earth
PENNSYLVANIA DRILLING COMPANY
PITTSBURGH, PA.

L. H. HOFFMAN, Pres.

DIAMOND CORE DRILLING
HOFFMAN BROS. DRILLING COMPANY
PUNXSUTAWNEY, PA.

We drill for any mineral. We have more than fifty steam, electric and gasoline drills, adapted for any job. Satisfactory cores guaranteed. Our prices are right.
Established 1902 - - - Telephone No. 382

Wanted
USED RAIL

10,000 ft. heavy sidetrack Rail or any part thereof; also need 5,000 ft. Light Rail.

Address replies to BOX 727
PIT AND QUARRY PUBICATIONS
538 S. Clark St. Chicago, Ill.

WANTED

Bids on 500,000 yards of stripping. Average depth of 15 ft. Communicate Turner Gypsum Company, Turner, Michigan.

WANTED

Double or triple deck vibrating screen, belt drive. What have you?

CASELLINI-VENABLE CORP.
Barre, Vermont

WANTED

Superintendent for large lime and stone operation. Must have chemical or mechanical engineering qualifications. State age, experience, and salary. Correspondence confidential.

Address All Replies To
Box No. 1012
PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago, Ill.

WANTED

Chief Electrical Engineer for Southeastern cement plant. Prefer one who has had experience in cement plants. In answering, give detailed statement of experience, salary expected and references. Address all replies to: Box 906
PIT AND QUARRY PUBLICATIONS
538 South Clark Street, Chicago

One (1)—one ton single drum hoisting machine for steam or air.

One (1)—No. 1 Horizontal Hydrator for five tons of lime per hour. This was originally built as a Schulthess but has been remodeled and is now a Kuntz Hydrator according to the latest Kuntz patents and improvements.

One (1)—William's Hammer Mill with Hammers complete This is a machine that was remodeled to take care of lime instead of stone, but it will crush either lime or stone and is of large capacity and will be sold for a song. We used it for experimental purposes only.

If you are in need of any lime plant equipment call us because we believe that we can dig it up for you—new or secondhand.

LIME & HYDRATE PLANTS COMPANY
York, Pennsylvania

FOR SALE

1—Monighan Steam Dragline, skid and roller 100′ boom, 3½-yd. bucket. Butt-strapped boiler. 10½″ x 12″ main engine.

1—Monighan Steam Dragline, skid and roller, 60′ boom, 2-yd. bucket. Butt-strapped boiler. 10″ x 10″ main engine.

MALVERN GRAVEL COMPANY
Malvern, Arkansas

1—Farrell Jaw Crusher, size 20″x10″
2—Rotary Revolving Segment Screens, size 56″x18′
1—Bucket conveyor, 44 ft. centers with 18″ buckets
1—Belt conveyor, 20″ wide, 55 ft. centers. All complete with foot wheels and head wheels.

Large quantity of belting and shafting.

S. GRAF
327 Hewes Street Brooklyn, New York

RAILS NEW AND RELAYING

MOST ALL SECTIONS IN STOCK also spikes, bolts, frogs, and switches available.

500 BRICK DRYER CARS

M. K. FRANK
480 Lexington Ave. New York City — 25 St. Nicholas Bldg. Pittsburgh, Penna.

DEPENDABLE USED MACHINES

P & H Model 206 shovel
Cedar Rapids portable plant; 1200 tons per day
4x8 Niagara 3 deck screen
24 in. x 40 ft. conveyor; elec.
4, 7, and 20 ton locomotives
C. P. 315 ft. compressor; also small Pumps, washers, sand tanks, pipe, etc.

TRACTOR & EQUIPMENT CO.
3515 W. 51st St. Chicago

ACME OFFERS

Bucyrus-Erie crawler steam shovel ¾ yard
Erie crawler steam crane, 40′ boom, ¾ yard
Buckeye trencher, dig 28″ x 7½′

THE ACME EQUIPMENT COMPANY
14057 Schaefer Highway Detroit, Michigan

CONVEYOR BELTING FOR SALE
36″ wide x 175 ft. Heavy rubber covers

BUCKET ELEVATOR BELT
12″ wide belt, with 10″ bucket attached. 70 ft.

Immediate Shipment

TERRENCE P. WYNN
55 West 42nd Street New York, New York

---

14 ton Vulcan loco. 36″ gauge, steam.
1¼ yd. Northwest Shovel Attachment.
1¼ yd. B-Erie 41-B Shovel Attachment.
16 yd. 2 comp. Steel Bin.
Erie, 40 ft. crane boom.
3″ Electric Pump, 75′ head.
Compressors, 360′, 500′, 630′.
1½ yd. 36″ gauge dump car.
3—12 ton 36″ gauge Whitcomb gas locos.

J. T. WALSH
Brisbane Bldg. Buffalo, N. Y.

Jaw Crushers—4″x8″ up to 18″x36″.
Crushing Rolls—16″x10″ up to 54″x24″.
Gyratory Crushers—No. 3, No. 12.
Ring Roll Mills—No. 0, No. 1, and No. 2.
Swing Hammer Mills.
Rotary Fine Crushers—No. 0, No. 1, No. 1½ and No. 2.
Direct Heat Rotary Dryers—3½′x25′, 4′x30′, 5′x30′, 5½′x40′, 6′x50′, 7′x50′ and 8′x50′.
Semi-indirect heat Dryers — 5′x30′ and 8½′x 75′.
Cement Kilns—3′ up to 8′ diameter.
Hardinge, Marcy & Fuller-Lehigh Mills.
Raymond Mills—No. 00, No. 0, No. 1, No. 2 Roll.
5 new 5′x50′ dryers.
Tube—Rod and Ball Mills—3′ to 6′ diameter.
Vibrating Screens—Air Separators.
2—4′x4′ ball mills.
New Dryers built for all purposes.

W. P. HEINEKEN
277 Fulton St., N. Y. Tel.: Barclay 7-7298

RAILS and ACCESSORIES

RELAYING RAILS—Super-quality machine-reconditioned—not ordinary Relayers.
NEW RAILS, Angle and Splice Bars, Bolts, Nuts, Spikes, Frogs, Switches, Tie Plates, and all other Track Accessories.
Most sizes usually available from warehouse stocks. Every effort made to take care of emergency requirements. **Phone, Write or Wire**

L. B. FOSTER COMPANY, Inc.
PITTSBURGH NEW YORK CHICAGO

---

8 x 36 Universal Crusher.
6 x 12′ Robbins Gyrex Screen.
100 hole Electric Blasting Machine.
New 12 inch conveyor belt 37 feet long.
Used 8 x 5 x 5½, type A elevator buckets.
Used 7 x 12 x 6, type A elevator buckets.
Used ½ inch tramway cable 38,000 feet.

THE SAWTOOTH COMPANY
Boise, Idaho

Allis-Chalmers 18″ Gates No. 8K gyratory crusher, manganese fitted, straight drive, No. 5405, over-hauled, Tex-rope drive, A-1.
Monighan Walker dragline, elec., 3-yd., 70′ bm.
Locomotives, gasoline, narrow gauge, 36″, 30″, 24″—7, 8, 10 tons. (4) 18-ton stm., 90 days.
Brownhoist 20-ton stm. loco. crane, ship Nov.
Bucyrus-Erie 1¼-yd. GA-2 gas-air shovel.
Bucyrus 50-B Shovel front attachment, (West).

H. Y. SMITH CO., 828 N. B'way, Milwaukee, Wis.

Sand pit and quarry located in the Northern part of New Jersey; property consists of about 57 acres. Conveniently located for highway and railroad shipments.

Address Box 1006

PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago, Ill.

SPREADER PLOW

Bucyrus Class 50, Std. Ga.; Adjustable 12′ Min., 23′ 9″ maximum, each side of track. Pneumatic control by one man; weight 137,500 lbs.; cost new $26,000.00; used very little; excellent condition; located near Hibbing, Minnesota.

BUTLER BROTHERS
(Iron Ore Miners)
137 E. 8th St. St. Paul, Minn.

1—Allis Chalmers 75 Monarch Tractor, LeRoi gas engine drive.
2—210 CFM Sullivan WK-60 Portable type V Air Compressors.
1—P. & H. Combination Shovel and Dragline, caterpillar, 1¼ yd. Buda gas powered.
1—Marion 1 yd. shovel, cat. mounted Waukesha gas engine.
1—Universal Truck crane, gas power, Mack truck mounted.
1—300 AMP Wilson Welder, LeRoi gas engine, 4 steel wheels.
1—Kelly-Springfield steam road roller 5 tons.
3—50 ton guy derricks with ropes, blocks, guys, 105′-95′.
1—7½ Gates K Gyratory crusher.
1—No. 6 Kennedy gyratory with synchronous motor in pulley.
1—10″x12″ Lidgerwood DC, DD steam hoist with swinger used three months only.

R. E. Boggs
1427 S. Eighteenth St. Birmingham, Alabama

QUARRY EQUIPMENT

Liquidating Large Quantity: Hoists, Cableways, Towers, Carriers, Bins, Buckets, Bulldozers, Compressors, Cranes, Finishers, Graders, Grinders, Hammers, Mixers, Planers, Pumps, Rollers, Scrapers, Toolboxes, Trailers, Trucks, Welders, Electric Motors, Generators, Transformers, Engines, Boilers, Etc.

H. W. WISWELL
4207 Russell Blvd. St. Louis, Mo.

12″ Dredge Outfit, 300 H.P. Motor.
Gyratory Crushers; 12 x 46″ & 8″ T. Traylor.
6, 7½, 9, 10K & 18N Allis Chalmers.
Jaw: 10x30″ 12x36″ Champion, 15x36″ Diamond & Pioneer, 24x36″ Farrell & 36x42″ Traylor.
Double Roll: 20x40″ Pioneer, 20x40 Cedar Rapids.
2 & 3′ Symons Cone, Coarse or fine bowls.
Barber Greene & Haiss Bucket Loaders.
150 HP-75 KW & 350 HP-250 KW 250 volt DC Bruce MacBeth Nat. Gas Generator Sets.

MID-CONTINENT EQUIPMENT CO.
Pa 2290. 710 Eastgate St. Louis, Mo.

NEED DUMP CARS?

Immediate Delivery:
12, 24-yd. Koppel
10, 20-yd. Koppel
10, 20-yd. Western
24, 16-yd. Western
11, 16-yd. Kilbourne & Jacobs

Illustrated specifications available—**Other Types of Cars Too. Also Locomotives, Cranes, Shovels, Etc.**

IRON & STEEL PRODUCTS, Inc.
13490 S. Brainard Ave. Chicago, Illinois
"ANYTHING containing IRON or STEEL"

BARGAINS

3—25 Ton Overhead Traveling Cranes
1—50,000 Gallon Tank & Tower
1—15 Ton McMyler Locomotive Crane
2—250 HP 165 lb. P. ASME Code Boilers
1—¾ yd. Crawler Gas Dragline
1—150 HP F-M Diesel—Like New
3—27E Pavers; A No. 1; Rebuilt
1—60 & 110 HP Gas Tractors

H. & P. MACHY. CO.
5819 Enright St. Louis, Mo.

Thew-Lorain No. 75 Shovel 1¼ yd. dipper.
Insley No. 400, ⅝ cu. yd. ¾ swing.
Complete crushing plant, 24x50 Farrell, 15x36 Universal, 4 ft. Symons Cone, with Diesel power. Cap. 200 cu. yds. hourly.
Overhead Traveling Crane 20 tons, 52 ft. span.
15-ton O.&S. Loco. Crane, gasoline.

M. WENZEL
5322 Aberdeen Road Kansas City, Kansas

For More Than 25 Years

PIT AND QUARRY

has had the
Largest Producer Circulation
in the field

FOR SALE
TWO PRACTICALLY NEW ELECTRIC MOTORS AND ONE OIL CIRCUIT BREAKER

1—Westinghouse squirrel cage induction motor—440 volt—3 phase—60 cycle—125 H.P.—1350 ft. lb. pull-out torque—160 Amp.—900 R.P.M. synchronous speed—their Type "CS" Special No. 56N475—Frame No. 774C—Serial No. 1856N475—$490.00 Net FOB Lima.

1—General Electric squirrel cage induction motor—2200 volt—8 pole—3 phase—60 cycle—100 H.P. at 900 R.P.M.—1050 ft. lb., their Type FT—frame 556—serial No. 5314496—maximum pull-out torque—full load current at 220 volts—26.5 amperes—direction of rotation counter-clockwise looking from shaft end. Bearing end thrust 750 lb. away from motor at shaft end. $450.00 Net FOB Lima.

1—Oil circuit breaker—General Electric Type FK 20—Cat. No. 6070395G29—rated 2500 volts with double series inverse time delay overload trip—single throw and triple pole series coil rated 50 amperes—equipped with instantaneous under voltage device. $35.00 Net FOB Lima.

Both motors are ball bearing equipped and will take a limited amount of end thrust. The stub end of the motor, to which a pinion or pulley can be applied, is 3.875 diameter, tapered for a distance of 4 1/16". The taper is 1¼" per foot. The keyway is 7/8"x5/8". The extreme end of the shaft is threaded to take an SKF nut and lock washer to hold the pinion or pulley on the tapered stub end.

If interested write

LIMA LOCOMOTIVE WORKS, INCORPORATED
Shovel and Crane Division
LIMA, OHIO

Sell Big K. C. Bridge Co. Stock

280 KW, 3 Ph. 60 Cy. 440 V. Allis Chalmers generator, 450 RPM belt drive to 300 HP Imp. Miller 4 Cyl. Nat. Gas Engine 185 RPM Exciter & Switchboard.
60 Cat. La Plant Choate Bulldozer, good.
Plymouth (4) 3 ton 36" Ga. locomotives.
Derricks, steel, (13) lgths. in sections to 85'.
Lambert & Munday 3 & 2 drum hoists (7).
Compressors, (9) Steam, Sullivans, Gardners, Laidlaw-Dunn-Gordon, up to 3 of 1850 C. F. Cap.
Air Receivers, (8) from 36"x6' to 48"x12'.
Cofferdam steam pumps, 100 to 1000 GPM.
Clamshell, Williams, (7) ¾ & 1 yd. ready.
Mixers, 7S to (3) 28S Koehring, hoppers & tanks.
Drills & Riveting Hammers, Diving air compressor.
Reel Est. 1500 ft. 1¼" Leschen wire rope, also some 1½". Shop, everything. Concrete & Muck buckets, round & square, open & closed bottoms.
Material 25 yd. st. bin, 1 yd. hoppers, weighers.
Miscellaneous pile Equip. 5 tons bolts to 40" lg.
Link-Belt cranes, up to 85' bm. 3 yd. bckt.
Wisconsin DT-4 6 Cyl. 108 HP. 5¾x6½ Housed, Elect. starter & battery clutch—radiator—outboard 13" Dia. x 12" face pulley. This engine precision rebuilt by expert. Both engines bargains, $1500.00 each disc. for two.
G.E. 50 KVA generator, 220 V. 60 Cy. with switchboard. V belt to G9500 Cat. Nat. gas engine, complete with water tower and silencer. First class $2250.00 KC. Ready.
Page 1¾ Yd. Dragline RC Bkt. '41, extra good
Shovel fronts, Byers ¾ rope. Byers 62, ½ yd. chain. Lorain 37, ⅝ rope crowd. General ⅝ rope. Ready.
Compressor, 2, New Gordon Smith 60' actual.
Byers Truckrane, truck Mtg. 25' Bm. clamshell ½ yd.
Speeder B-3½ yd. shovel, KC. $3500. Ready.

CALL WIRE WRITE
GEORGE C. KENNEY MACH. CO.
2136 Jefferson St. Kansas City, Mo.

LOUISVILLE KENTUCKY

ROY-C-WHAYNE
SUPPLY COMPANY.

800 W. MAIN PHONE WABASH 1375

SPECIAL SPECIAL SPECIAL

4—KOEHRING DUMPTORS, MODEL W55, 5.7 CU.YD. CAPACITY, ALL HAVE GOOD TIRES. THESE UNITS ARE ALL IN GOOD OPERATING CONDITION AND HAVE BEEN CLEANED UP, PAINTED AND LOOK GOOD....EACH $2495.00

1—CONCRETE PAVER, KOEHRING MODEL 27E, WITH BOOM AND BUCKET, EQUIPPED TO MEET INDIANA STATE HIGHWAY SPECIFICATIONS; JUST FINISHED A JOB..... 1995.00

1—STATIONARY COMPRESSOR. Model WJ3 Sullivan Angle Compound Compressor, size 14—8¾x10, shop No. 5239, complete with air receiver 49"x130". The compressor is powered by a 3 phase, 60 cycle, 220 volt, 50 HP electric motor complete with flat belt drive. This unit is now operating at 163 RPM and produces 288 CFM. The capacity can be increased by running compressor at 250 RPM with a 75 HP electric motor; when operated at this speed will produce 442 CFM $1841.00

1—Compressor, Ingersoll-Rand Stationary Type, Model 75-H; 6-cylinder, 7.5"x 6.25"x5"; 360 cu. ft. actual air, Skid mounted for direct connected power.... 1100.00

1—Grader, "Caterpillar" No. 44, 10' blade; hand controlled, almost like new, 4 steel wheels, single frame..... 1100.00

1—R-B Power Sub-Grader, 9-10', powered by 4-cylinder Hercules Gasoline Engine; purchased new 1937. Available Now 1000.00

1—Locomotive, Plymouth, 8-ton, 36" gauge, Model BTU, powered by gasoline engine. In good operating condition.... 2250.00

1—Locomotive, Whitcomb, 8-ton, 36" gauge, Type MA, powered by gasoline engine. In good operating condition..... 2100.00

1—Pulverizer, Model 2XA Gruendler, practically new 950.00

1—Track Unloader, Barber-Green, Serial No. 51-6-3; has 18" belt 12' long; powered by 2-cylinder Gasoline Engine; mounted on two steel wheels; good condition. Available immediately 300.00

1—Crawler Wagon, LaPlant-Choate, 10-yd. capacity, Hydraulic Control, Side Dump, Rock Type with Tractor Pump..... 1850.00

1—Generator Set, 30 to 35 KVA Otis Generator, 3 phase, 60 cycle, 220 volt, with belted exciter and rheostat for exciter, direct connected to Model D6100 "Caterpillar" Diesel Power Unit all mounted on steel channel base.....For Rent

1—Diesel Electric Generator Plant, 225 HP, 6-cylinder Buckeye Diesel Engine, direct connected to 187 KVA Generator, 3 phase, 60 cycle, 480 volt, complete with switchboard and starting equipment for Diesel Engine. This is a complete power plant in A-1 condition located in Kentucky. Price 9860.00

1—Generatsr Set, 70 KVA Allis-Chalmers Generator, 3 phase, 60 cycle, 220 volt, direct connected to Model D11000 "Caterpillar" Diesel Power Unit, all mounted on steel channel base. This unit for rent only. Quotation upon request.

1—Generator Set, 37.5 KVA General Electric Generator, 3 phase, 60 cycle, 208/120 volt, V-belt driven by Model D7700 "Caterpillar" Diesel Power Unit, all mounted on steel channel base. This unit for rent only. Quotation on request.

1—Multi-Roll Sizer, Allis-Chalmers, 7 Roll, 36" wide x 12" Diameter. Price on application.

1—CRAWLER SHOVEL, 1—1¼ yd. K-ehring, powered by Waukesha Gasoline Engine. This is an old machine but in good condition. Price at present location. A bargain 6500.00

1—Shovel, Bucyrus-Erie, Model 32B, 1 cu. yd. capacity, powered by Gasoline Engine 9150.00

1—Combination Shovel, Trenchhoe, Crane, Model No. 2 Northwest, ⅝ cu. yd. Shovel, ⅜ cu. yd. Trenchhoe, 45 ft. crane boom, powered by Gasoline Engine 5700.00

1—Trailer, Model 25 Northwest, 25-ton capacity, equipped with 4—9:00x15, 10-ply tires front, 8—7:50x15, 10-ply tires rear 1150.00

1—Jaw Crusher, Pioneer, 20x36 Roller Bearing, Latest Type 4845.00

50—Rock Drills, Brand new Cleveland, Model H77

10—Saw Rigs, Model No. 1, Beach Table Saws, rip and cross cut. Each..... 325.00

1—Angledozer, LaPlant Choate, Hydraulic, for Model RD8 "Caterpillar" Tractor, complete with Pump for Tractor..... 1250.00

1—CRUISER, Chris-Craft 32 ft., Chrysler Crown Motor with reduction gear, sleeps 4, built 1932 or '33, in A-1 condition except roof needs repainting, complete equipment, can be inspected in our warehouse 2000.00

We have a large stock of Rental Equipment consisting of Tractor and Scraper Outfits, Bulldozers, Shovels and Cranes, Air Compressors, Wagon Drills, Concrete Mixers, Pumps, Sheepfoot Rollers, Electric Generator Sets. Leases are expiring daily on this equipment and we invite your inquiries. Also have two large Grading Outfits consisting of two 1½ yd. Diesel Shovels, complete with hauling equipment, Bulldozers, 315 Foot Air Compressors, Wagon Drills, etc., available about October 10th.

DEPENDABLE USED EQUIPMENT

Lefton Industrial Corp.
St. Louis, Mo.
212 Victor Street
L. D. 517

Steam — Gasoline — Electric
HOISTS
Crushing and Screening Equipment
Relaying Rails—Spikes—Bolts—Tie Plates

Index to Advertisers

*Allis Chalmers Mfg. Co..... 5
*American Cable Div. American Chain & Cable Co., Inc..... .....Inside Back Cover
*American Chain & Cable Co., Inc.....Inside Back Cover
American Manganese Steel Co... 67
*American Pulverizer Co..... 91
Anchor Concrete Mchy. Co..... 82
Atlantic Equip. Corp..... 97
Atlas Powder Co..... 14

Bacon, Inc., Earle C..... 72
Balzer Machinery Co..... 96
*Barber-Greene Co. 85
Barjohn Corp. 97
Birmingham Rail & Loco. Co.... 99
Brill Equipment Corp..... 97
Broadcast Section 95-103
*Brooks Equipment & Mfg. Co... 94
*Buell Engineering Co., Inc..... 26
Burnham, Royal E.....101

Carlyle Rubber Co., Inc.....95-96
Chicago Perforating Co..... 66
*Chicago Steel Foundry Co..... 68
Cleveland Rock Drill Co..... 11
Cleveland Wire Cloth & Mfg. Co. 94
*Colorado Iron Works Co..... 92
Commercial Shearing and Stamping Co. 82
Concrete Transport Mixer Co.... 84
Consolidated Products Co., Inc.. 95
Crusher Service 99

*Denver Equipment Co..... 94
*Dempster Bros., Inc..... 94
*Diamond Iron Works, Inc..... 66
DuPont De Nemours & Co., Inc., E. I. 23

*Eagle Iron Works..... 92
*Easton Car & Construction Co... 1
*Ensign-Bickford Co., The..... 89
Equipment Corporation of America 96-97
*Erie Steel Construction Co..... 64

First Machine Corp..... 98
Flexible Steel Lacing Co..... 93
*Fuller Co. 4

Gates Rubber Co., The..... 20
Goodall Rubber Co..... 91
*Gruendler Crusher & Pulverizer Co. 70

*Haiss Mfg. Co., Inc., Geo..... 72
Hallowell, Horace J.....101
*Hardinge Company 18
*Hendrick Mfg. Co..... 94
Hoffman Bros. Drilling Co.....101
*Jackson & Church Co..... 85
*Jaeger Machine Co..... 83
*Jeffrey Mfg. Co..... 16

*Kennedy-Van Saun Mfg. & Eng. Corp. 90
Kenney Mach. Co., George C...103
Kent Machine Co..... 82
Koehring Company 19

*Laughlin Co., Thomas..... 62
Lefton Industrial Corp.....103
Lima Locomotive Works, Inc....103
*Link-Belt Co. 93
Ludlow-Saylor Wire Co..... .....Inside Front Cover

Mack Trucks 15
Marion Steam Shovel Co., The.. 13
Master Builders Co., The..... 88
*McLanahan & Stone Corp..... 94
*Morris Machine Works..... 65
*Multiplex Concrete Machy. Co... 85

*National Wire Cloth Co., Inc... 91
Neff & Fry Company..... 84
New Holland Machine Co..... 71
*Nordberg Mfg. Co..... 2
Northwest Engineering Co..... 21

*Owen Bucket Co.....104

Patterson Equipment Co..... 95
Pennsylvania Drilling Co.....101
Pettibone Mulliken Corp..... 10
Porter Co., H. K..... 72

Raybestos-Manhattan, Inc. 9
*Raymond Pulverizer Div. of Combustion Engineering Co., Inc.. 24
Revercomb, Geo. A., Jr..... 98
*Roebling's Sons Co., John A... 12

*Sauerman Bros., Inc..... 82
Schaffer Poidometer Co..... 70
*Screen Equipment Co., Inc..... 72
Service Supply Corp..... 96
Shinn and Walker, Inc..... 99
Simplicity Engineering Co..... 93
*Smidth & Co., F. L..... 94
Smith Engineering Works..... ..... Back Cover
Smith Co., T. L..... 87
Southern Iron & Equipment Co.. 95
Standard Metal Mfg. Co..... 91
Stanhope, Inc., R. C..... 99
*Stearns Mfg. Co..... 73
Stoody Co., The..... 69
Swabb Equip. Co., Frank..... 96
*Syntron Co. 93

Taylor Forge & Pipe Works.... 8
Taylor-Wharton Iron & Steel Co..6-7
Teuscher Pulley and Belting Co.. 96
Thermoid Rubber Co..... 3
Thornton-Tanden Co. 71
*Traylor Engineering & Mfg. Co.. 63
*Tyler Co., The W. S..... 69

*U. S. Treasury Department..... 84
Unverzagt, G. A..... 95

Walsh Co., R. P..... 95
Webber Equipment Co..... 99
Wellman Engineering Co..... 16
Whayne Supply Co., R. C.....103
*Wickwire Spencer Steel Co..... 17
*Williams Pat. Crusher & Pulverizer Company 104
Worthington Pump and Machinery Corp. 60-61

***See also Detail Information in the 1942 Pit and Quarry HANDBOOK**

for Making 1¼", ¾" or Agricultural Limestone...

THE WILLIAMS "SLUGGER" CRUSHER AND PULVERIZER

● Handles Large Stone or Screen Rejects ●

Rows of heavy, free swinging, fast revolving hammers, crush the material by impact until of proper size to pass through the grates. By reducing large rock to 1¼", ¾" or agricultural size in one operation, the "Slugger" has enabled operators to produce these sizes at a very low cost per ton and with small investment. Seven sizes—6 to 150 tons hourly capacity.

The Williams Patent Crusher and Pulverizer Co.
802 St. Louis Ave. St. Louis, Mo.

WILLIAMS
OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
PATENT CRUSHERS GRINDERS SHREDDERS

AIR SEPARATORS
ROLLER MILLS
CRUSHERS
GRINDERS
SHREDDERS

AMERICAN CABLE TRU·LAY *Preformed*

HELPS PREVENT ACCIDENTS

60% of industrial safety directors recognize that wire rope can be dangerous for workmen. A great many of them recognize that preformed wire rope is much the safer type.

● Perhaps you can't altogether correct lost-time due to illness—but you can do much to prevent accidents. Take wire rope for instance—many operators have never had a lost-time accident due to punctured hands and subsequent blood-poisoning. But many have—and in these days of emergency demands, any such accident is too many.

American Cable **TRU-LAY PREFORMED** is the safest possible rope to use. Worn or broken crown wires lie flat and in place. No wicked barbs to tear hands. **TRU-LAY** resists kinking and whipping, too—thereby handling easier, faster, safer. And acknowledgedly—it lasts longer than non-preformed.

Specify American Cable **TRU-LAY PREFORMED** — the safer rope. All American Cable ropes identified by the Emerald Strand are made of Improved Plow Steel.

AMERICAN CABLE DIVISION

Wilkes-Barre, Pa., Atlanta, Chicago, Detroit, Denver, Los Angeles, New York, Philadelphia, Pittsburgh, Houston, San Francisco, Tacoma

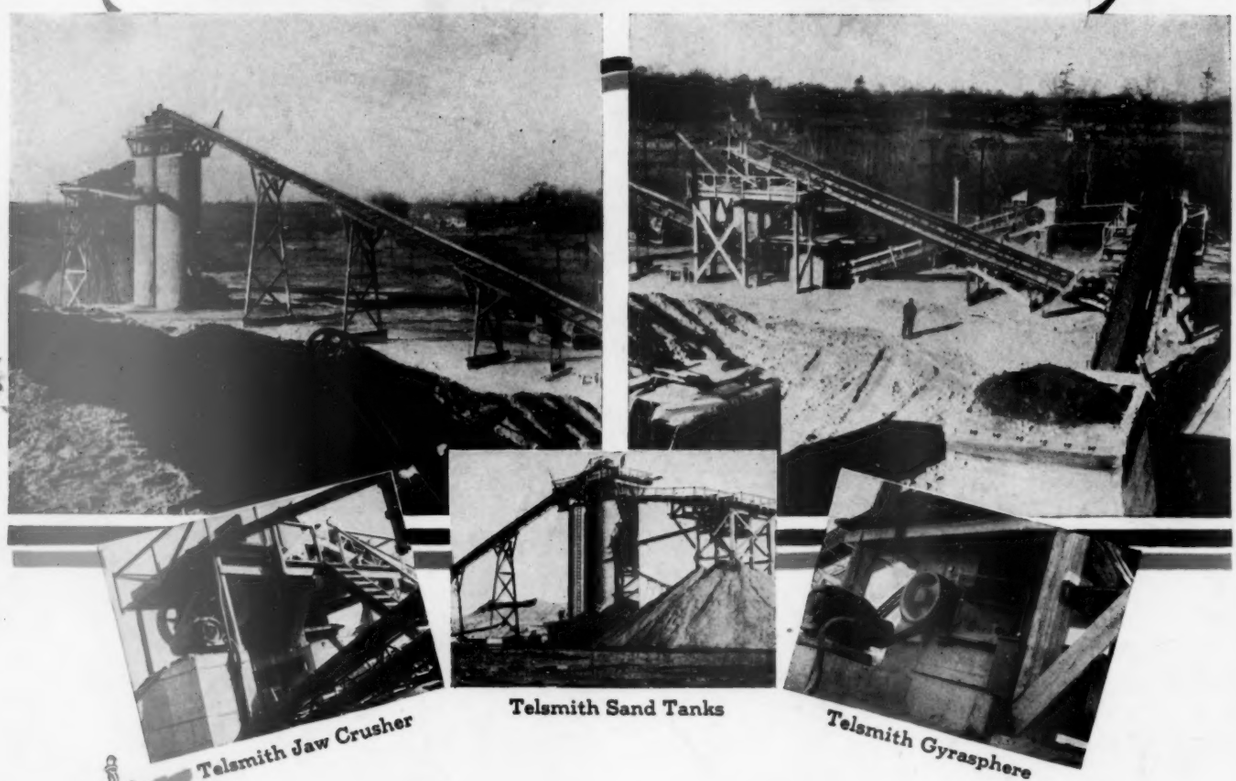
AMERICAN CHAIN & CABLE COMPANY, Inc. BRIDGEPORT, CONNECTICUT

ESSENTIAL PRODUCTS . . . AMERICAN CABLE Wire Rope, TRU-STOP Emergency Brakes, TRU-LAY Control Cables, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Iron Castings, CAMPBELL Cutting Machines, FORD Hoists and Trolleys, HAZARD Wire Rope, Yacht Rigging, Aircraft Control Cables, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

TELSMITH Gravel Plant

goes all out

FOR WIN-THE-WAR CONSTRUCTION



Telsmith Jaw Crusher

Telsmith Sand Tanks

Telsmith Gyrasphere

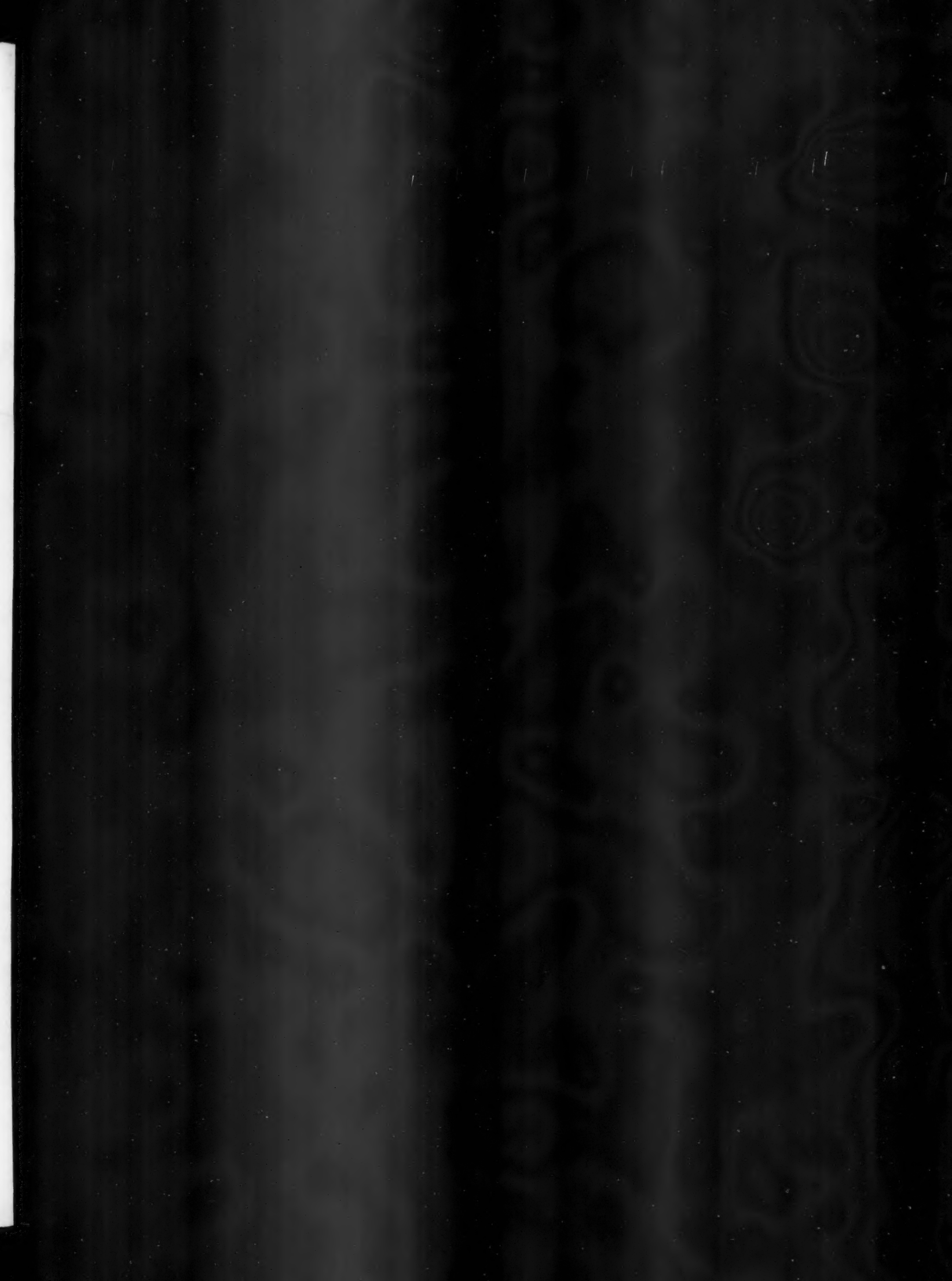
★ Minus and plus ¾″ and minus 1½″ gravel, and sand is in demand for war projects in the vicinity of Pawtucket, R. I. Starting operation Nov. 1, 1941, this new Telsmith equipped gravel plant of J. J. McHale & Sons near Pawtucket is turning it out at about 125 to 150 tons per hr.

A 1¼ cu. yd. shovel and two end dump trucks feed raw bank run gravel into an 8 cu. yd. hopper having a railroad rail grizzly that rejects the few oversize boulders. A 30″ x 5′6″ Telsmith Reciprocating Plate Feeder feeds material out of hopper and over a No. 450 Telsmith Rotary Grizzly with 3¼″ spaces. Plus 3¼″ goes to an 18 x 30 Telsmith Roller Bearing Jaw Crusher. A 30″ x 73′ belt conveyor takes minus 3¼″ direct from the grizzly, and from the jaw crusher, to a 4′ x 10′ Telsmith Single Deck Pulsator. Plus 1½″ from this scalping screen goes into a No. 36 Telsmith Gyrasphere Crusher; and when crushed returns to the 30″ primary conveyor via an 18″x48′6″ conveyor.

Minus 1½″ from the scalping screen goes via a 24″ x 186′6″ finished product conveyor to a 5′ x 12′ Telsmith 2-Deck Pulsator for washing and sizing. Sand is flumed to two No. 8 Telsmith Sand Tanks on a tower independent of main plant. The two sizes of gravel are deposited in two 20′ diam. concrete-block silo bins, fitted with bin gates for loading into trucks.

Why do so many operators with war construction jobs depend on Telsmith? Because Telsmith equipment can be pushed to *top speed* and *will produce*. Telsmith Engineers' plant planning is sound. Telsmith Service is fast. *Get Bulletin G-15.* G-10

SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE, WISCONSIN

Cable Addresses: Sengworks, Milwaukee—Concrete, London

Room 1604—50 East 42nd St. New York City
211 W. Wacker Drive Chicago, Ill.
713 Commercial Trust Bldg. Philadelphia, Pa.
19-21 Charles St. Cambridge, Mass.
Borchert-Ingersoll, Inc. St. Paul, Minnesota
Brandeis M. & S. Co. Louisville, Ky.
Charleston Tractor & Eqpt. Corp. Charleston, W. Va.
Roanoke Trac. & Eqpt. Co. Roanoke, Va.
North Carolina Eqpt. Co. Raleigh and Stateville, N. C.
Wilson-Weesner-Wilkinson Co. Knoxville and Nashville, Tenn.
G. F. Seeley & Co. Toronto, Ont.